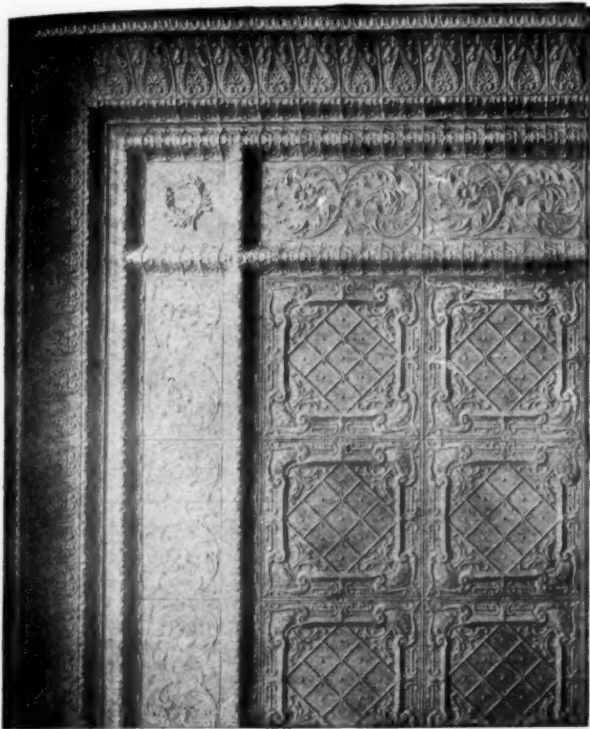


AMERICAN ARTISAN and Hardware Record

Vol. 80. No. 12.

620 SOUTH MICHIGAN AVENUE, CHICAGO, SEPTEMBER 18, 1920.

\$2.00 Per Year.



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"One Thousand Furnaces is a pretty good sales record"

One of our dealers before the end of this year, will have sold 1000 Mahoning Furnaces in a single city territory. Not bad, you'll say, for one dealer. And the big part of it is this dealer wouldn't sell his Mahoning Agency for the profits on a good many thousand furnaces.

Good Territory Still Open

The Mahoning is the furnace that is sold from coast to coast. We still have some mighty good territory open for progressive dealers.



A letter will secure our literature and complete agency details.

The Mahoning Foundry Co.
622 Poland Ave., Youngstown, Ohio

We maintain Eastern and Western warehouses for the convenience of the trade.



WRIGHT PIPELESS HEATERS

FOUNDED 1880
BY
DANIEL STERN
Thoroughly Covers
The Hardware, Stove,
Sheet Metal, and Warm
Air Heating and Venti-
lating Interests

AMERICAN ARTISAN and Hardware Record

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AND
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Many things occupy our attention nowa-days. Often matters of first importance are crowded out by details of comparative insignificance. **Prevent Fire and Accident** After all, life is a sum of little things. It is amazing, for instance, how quickly the vast tragedies of the war faded out of the consciousness of the people. Our nature is such that we forget yesterday's disaster in today's sunshine.

It becomes necessary, therefore, to set aside special days for bringing the big things of life back again into the foreground.

That is why, for example, Fire and Accident Prevention Day has been made a special occasion in many parts of the country. This year in Illinois it is set for the 9th of October.

So far this year more than a quarter of a billion of dollars in value have been destroyed by fires in the United States and Canada. It is estimated by competent authorities that fully 75 per cent of the fires are due to preventable causes.

It is generally recognized that the only way to reduce these appalling wastes of values is by developing a community spirit with relation to them.

Individuals are inclined to shirk responsibilities or to take for granted that their neighbors are doing things which they ought to do.

Consequently, it is essential to create a sense of common interest to offset individual carelessness. When the entire community is pervaded by the thought of equal responsibility, negligence diminishes.

The purpose of the Fire and Accident Prevention Day is to induce all the people to center their thoughts upon the avoidance of fire losses, the destruction of life and the crippling of people which, in the main, are within the control of the people themselves.

Enterprising hardware merchants can perform a good work in this connection by making their stores local centers of education in behalf of Fire and Accident Prevention Day.

By the expenditure of a little time and labor, appropriate posters can be made giving the figures of the enormous fire losses of our country and stating briefly the chief things to be observed for the prevention of fires and accidents.

Such an active educational work can very well be connected with a window display of fire extinguishers or any appropriate group of commodities.

It will make a good impression upon the people and thus enhance their good will toward the dealer.

◆ ◆ ◆ ◆ ◆

The average retailer of hardware does not carry in stock a sufficient variety of cutlery.

Gain More Customers The consequence is that he loses many a profit which otherwise he might easily gain. Depending upon the

locality in which his store is established, the dealer has scores of prospective customers for cutlery which he has never carried. For example, there are said to be at least one hundred various shapes of butcher knives on the market, each having its particular form and use.

The owners of the meat shops in his territory would readily disclose new business for sales of this class of cutlery. He could find out what knives are most used and then prepare special selling appeals to obtain the trade of the butchers.

It is said that there are several dozen shapes of knives made for special use in the kitchen. Every one of them is a convenience for the woman of the house.

By the right kind of sales solicitation it will not be difficult to sell a bigger variety of

knives for the kitchen. Merely it is a matter of more study and more effort.

In a word, the hardware business has no limitations. Always there are new customers to be gained and additional articles to be sold for any group of commodities such as cutlery.

♦ ♦ ♦ ♦ ♦

There is much difference of opinion with regard to the benefits of collective advertising. Some associations of

Collective Advertising manufacturers contend that it does not help business. Their members prefer to advertise as individuals. On the other hand, there are many examples of collective advertising which go to show that positive advantages have flowed from this form of publicity. Individual members of the lumber manufacturers associations have reported appreciable gains through the influence of collective advertising of their industry.

A recent noteworthy instance is that of the ball-bearing manufacturers who plan their appropriations for the purpose of advertising the scientific principle of their product rather than personal exploitation of individual factories and brands.

The ball-bearing idea was told to the public and trade alike. Their collective publicity is still under way. Partial reports indicate positive advantages already for that industry.

Collective advertising of the warm air heater industry has been tried to some extent in Philadelphia. It is deserving of wider experiment.

There is no question of the necessity of more accurate information regarding warm air heaters on the part of the general public.

In a nut shell, selling is merely a form of education. You teach your customer the use, quality, and convenience of a saw when you sell it to him or of a washing machine, or of any other product.

Multiply that teaching in the form of collective advertising and you reach a bigger number of customers.

The more the people know about warm air heaters the more likely are they to buy warm air heaters. This is elementary. It is the basic thing in selling. The only doubt regarding it is one of expediency.

Can the people be reached more effectively

by individual advertising of individual warm air heaters than by collective advertising of the principles of warm air heaters—supplemented, of course, by the advertisements of each particular manufacturer?

Briefly, that is the problem which can be studied to advantage in the group, state, and national conventions.

♦ ♦ ♦ ♦ ♦

At the recent meeting in Chicago of the American Washing Machine Manufacturers' Association, a series of motion picture reels was presented by the Bray Studios, Chicago, showing the possibilities of animated pictures

Movies to Sell Warm Air Heater for instruction in the mechanical workings of washing machines. Admittedly, it is a form of popular education and is coming more and more into favor every day. In France, for example, motion pictures are used in the primary and secondary schools to teach history, geography, biology and various other branches of learning.

Many of the schools in this country also are employing the films for purposes of education. Recently there has been worked out successfully an improvement in the technique of animated pictures by which almost any product can be shown in all its operations.

This fact suggests a new and powerful medium for educational publicity in the warm air heater trade. Not only is it feasible to show the general public the advantages of the warm air heater with respect to health, comfort, and satisfactory heating of the home, but also the animated pictures can be used to teach dealers and installers the best practices of selling and installing warm air heaters.

There can be little doubt that this suggestion is fruitful in possibilities of progress and profit.

Sometime it is going to be put into effect. It will come into use all the sooner if recognition of its value spreads rapidly throughout the trade.

In local, state, and national meetings of dealers and manufacturers the topic would serve as a subject for helpful discussion.

A sentiment in favor of such a process of education could quickly be brought into being and strengthened to the point of accomplishment.

Random Notes and Sketches

By Sidney Arnold

I enjoyed a friendly visit this week from George L. Rose of Jacksonville, Illinois, sales representative of the Wise Furnace Company, Akron, Ohio.

* * *

Here is a somewhat unfamiliar Mark Twain story sent to me by my friend Colonel W. J. Lockwood:

Mark Twain at a public dinner once said: "Speaking of fresh eggs, I am reminded of the town of Squash.

"In my early lecturing days I went to Squash to lecture in Temperance Hall, arriving in the afternoon.

"The town seemed poorly billed. I thought I'd find out if the people knew anything at all about what was in store for them.

"So I turned in at the general store.

"Good afternoon, friend,' I said to the general storekeeper. 'Any entertainment here tonight to help a stranger while away the evening?'

The general storekeeper, who was sorting mackerel, straightened up, wiped his briny hands on his apron, and said:

"I expect there's goin' to be a lecture. I been sellin' eggs all day.'"

* * *

Often the most delicious humor is the unconscious humor of children, in the opinion of my friend, Jim Gormley, of Bullard and Gormley Company, Chicago, Illinois.

He narrates this instance:

Mother—"Poor boy, how did you hurt your finger so?"

Little Son—"With a hammer."

Mother—"When?"

Little Son—"A good while ago."

Mother—"I didn't hear you cry."

Little Son—"I thought you were out."

* * *

Our notions of things are the result of our environment to a considerable extent, says my friend, Allan J. Coleman, President, Hardware Club of Chicago.

He tells about a city youngster who was paying his first visit to his uncle's farm.

Among the animals on the place was a rather small colt.

As the boy stood gazing at the little creature his uncle said: "Well, what do you think of him, Johnny?"

"Why—why, he's all right," said Johnny, "but where's his rockers?"

* * *

One of the most courteous and patient men in the world is my friend, Samuel D. Latty, of Kirk-Latty Manufacturing Company, Cleveland, Ohio.

Now and then, however, under strong provocation, he breaks a life-long rule as, for instance, the other day in the case of Mr. Black's baby boy.

Mr. Black picked up his boy and exclaimed with fatherly pride, "There, now, isn't he just the picture of his father?"

Mr. Latty thought a moment and replied:

"Yes, you're right, but you don't want to let that worry you so long as he is healthy."

* * *

My friend, M. E. Ledlie, Sales Manager, Detroit Vapor Stove Company, Detroit, Michigan, was strolling with a friend the other day.

In the course of the walk, the friend said to him:

"You see that house up there?"

"Yes," replied Ledlie, "what about it?"

"Well," the other replied, "that house was built with money made from many sufferings and writhings, and much blood."

"What beast lives there?" inquired friend Ledlie.

"My dentist."

* * *

We were talking about hunting dogs and my friend Charlie Glessner, Secretary and Sales Manager Excelsior Steel Furnace Company, Chicago, Illinois, said:

"I had a bird dog once that was really noteworthy. He never failed on a point.

"One day I had him out for exercise in the park, when suddenly he pointed, rigid as a stone.

"I was puzzled. There was no possibility of game. The grass was closed clipped.

"The dog had his nose straight on a man seated on a bench.

"I thought man might have a live bird in his pocket, but no, the man was in his shirtsleeves.

"Then I had an idea.

"Pardon me, sir,' I said, 'but would you mind telling me your name?'

"No, I don't mind,' he replied. 'It's Partridge.'"

* * *

The subjoined verses would not take the Blue Ribbon in any poets' Olympic. But they express an idea in a straightforward manner which is both helpful and inspiring.

In spite of the hardening influence of the Great War, we are inclined to be flabby in what for the want of a better term might be called muscles of our will power.

The best of us need patience, perseverance and tenacity of purpose.

That is why it is good to set forth these lines of Edgar A. Guest:

Have the Patience to Work and Wait.

If you haven't the patience to work and wait,
To build with precision and lay your brick straight;
If you haven't the courage to grin now and then
When the structure falls down, and to start in again,
Just remain where you are and be satisfied, too,
For the hazards out there will be too much for you.

If you can't stand alone in the thick of the fight,
And persist in your course when you know you are right;
If you can't keep your faith when it's greeted with sneers,
And still go for the goal which but dimly appears,
Don't leave the broad highway to carve out a new,
For the hardships out there will be too much for you,
If you can't get along without flatt'ry or praise,
And the comforts and joys of these wonderful days.



Up-to-the-Minute News Siftings

*Items of Interest to Dealers Gleaned from Many Fields.
National and Local Business Plans, Problems, and Practices.*

FIRE PREVENTION DAY TEACHES URGENT LESSON TO ALL.

Fire and Accident Prevention Day has been designated as October 9, 1920, for the State of Illinois.

It is an important factor in the campaign for the conservation of the national resources by reducing the preventable fire waste of the country and the terrible toll of life and accidents.

It is specially important this year in view of the national campaign for the conservation of foodstuffs and manufactured resources to reduce the high cost of living, and the necessity of maintaining the earning power and production of the country.

The fire losses in the United States and Canada in 1920 were \$269,000,775, so far this year they are more than \$40,000,000 ahead of the same period last year.

The state fire marshals and fire prevention authorities generally agree that 75 per cent of these fires are due to preventable causes, and could easily be avoided by the exercise of reasonable precaution, individual and municipal.

The loss in earning power due to preventable accidents is over two billion dollars a year.

Over 15,000 are killed and 50,000 injured annually as a result of fire.

The fire losses and the cost of fire prevention in the United States amount to annually \$700,000,000.

The annual per capita fire waste in the United States is \$2.50; in Europe 33 cents. Reason: the latter has better construction, less carelessness and increased responsibility.

An ounce of fire prevention is worth a pound of fire extinguishment. The way to get lower insurance rates is to have fewer fires.

Here are some practical suggestions to help put into effect the urgent lesson of Fire and Accident Prevention Day:

Don't put ashes in other than metal receptacles, and don't dump them where they will come in contact with combustible materials.

Don't use an open light when looking for escaping gas or in the presence of inflammable liquids.

Don't use insecticides or liquid polishes in the vicinity of open flame light. Many such compound contain volatile inflammable oils.

Don't use gasoline or benzine to cleanse clothing near an open flame, light or fire.

Don't use kerosene, benzine or naphtha in lighting fires, or to quicken a slow fire. It may result in death.

Don't permit oily rags to lie around.

Don't hang electric cords on nails.

Don't make bonfires of rubbish where the wind can scatter it. Burn it in a container.

Don't throw away lighted matches, cigars and cigarettes.

Keep waste paper and rubbish cleaned up, and remove from building at least daily.

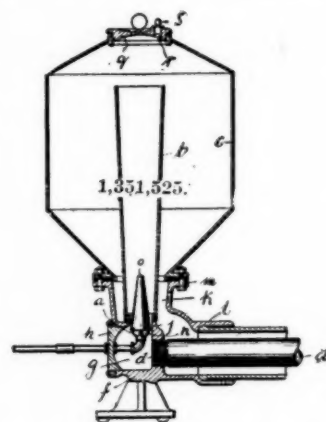
Keep gasoline in safety cans and in a safe place.

Feel your personal responsibility for possible loss of life and property by fire, and act accordingly.

Don't let the fact that you are insured make you careless.

Patents Heating Stove Burning Gas or the Like.

United States patent rights, under number 1,351,525, have been granted to Frederick Mackenzie Lea, Birmingham, England, for a heating stove burning gas or the like described as follows:



An improved heating stove for burning gas in the presence of air, comprising in combination a burner chamber, a gas burner arranged therein, an air pipe leading to said burner chamber, an outer chamber having a seating at the top, a chimney outlet from said burner chamber above said burner, and within but closed from said

outer chamber, a closed casing of larger volume surrounding said chimney and secured on the seating of said outer chamber, said casing having free communication with the interior of said outer chamber, and said outer chamber having an outlet pipe for the products of combustion communicating therewith, said products rising in said chimney and being received in said casing and having their exit through said outer chamber below said casing.

Gets a Nice Order Through the AMERICAN ARTISAN.

TO AMERICAN ARTISAN AND HARDWARE RECORD:

It seems only fair that we should inform you that the inquiry you referred to us from Mr. Robert Merker, of Monee, Illinois, for the makers of Summit stoves and ranges, followed by our writing him with quotation, has resulted in bringing to us a nice order from him, and we wish to express our appreciation of your interest and courtesy.

Very truly yours,

SUMMIT STOVE WORKS,
George W. Robinson,
Vice-president.

Morrison, Illinois, September 10, 1920.

The Week's Hardware Record

*What Retailers, Jobbers, and Manufacturers Are Doing.
Latest Selling Methods. Experiences of Successful Men.*

PRICE FLUCTUATIONS WILL CONTINUE TO RULE.

We can not remind ourselves too often that fluctuations in commodity prices and in other things are going to continue.

What is meant is that it is certain there is going to be no continuous trend over a period of years in one direction or the other.

The cessation of hostilities November 11, 1918, left us with high commodity prices, as compared with pre-war average, also high wages and a great deal of money "inflation."

Doubtless it will be admitted that an indefinite continuance of a trend in this direction could not be expected.

If there have been increases since November, 1918, that would simply provide an argument that a trend in the other direction should come.

If, on the other hand, it was requisite that there should be a general downward readjustment, towards the pre-war conditions, then such a trend would certainly be definitely established, and be apparent to everyone, long before this time.

The conclusion is inevitable, therefore, that we are in—not beginning, but in—a period of fluctuations.

We must remind ourselves, for we are apt to think that we are simply in a period of readjustment, waiting for the end of the readjustment, but when we reflect that it is more than 20 months, really not far from two years, since the cessation of hostilities we must admit that for a people that move rapidly and change their views quickly we have not been in any period of readjustment for which any definite time limit can be set.

After the armistice the French quickly adopted a new term, abandoning "reconstruction" and taking "reconstitution."

That was apt, but we must recall that we have always, or at least at intervals, been reconstituting. We were doing this more or less regularly before the war.

We must abandon all thoughts that prices can not go down or that prices can not go up.

We are going to have fluctuating markets as we have always had and as formerly the most successful man will be the man who can call the turns the soonest.

In the matter of credit, too, we are going to have fluctuations.

For several months the Federal Reserve Board has been encouraging a contraction of credit and while its

actions have been criticized in some quarters its course will probably be endorsed more generally in future than it is at the present time.

But it does not by any means follow that the restriction of credit aimed at needs to be permanent.

There is no evidence that can be regarded as at all conclusive that credit has got to be reduced to a point beyond which it can never go again.

Certainly the reserve board has enunciated no such doctrine.

Its idea has been that there has been too much extravagance and that credits needed to be reduced in order to curb the extravagance.

Let the people become economical, and the propriety of an expansion in credits would thereby be established.

It is not the quantity of credit so much as its character that has been the dictating influence.

Let us, then, forget about reconstruction and readjustment and consider that we are simply faced with fluctuations and changes, just as we used to be before the war.

There is nothing to wait for as a result of the war's ending.

Criticizes Use of Comparative Prices in Advertising.

The danger arising from the indiscriminate use of comparative prices in retail advertising is stressed in an interesting and effective manner by a report recently issued by the Better Business Bureau of Indianapolis, Indiana, which is affiliated with the National Vigilance Committee of the Associated Advertising Clubs of the World, says a bulletin from the offices of the latter organization, in New York.

"Comparative price advertising," suggested in the Indianapolis Bureau in a report to its members, "is again running riot in Indianapolis.

"Merchants who seldom use comparatives have been using them recently.

"Others who habitually use them have been even more extravagant in their statements.

"These range from supposed savings of one-half or more in clothing advertising to \$200 dresses for \$75.00; \$175 tailored suits for \$50; \$150 coats for \$70; \$22.50 dresses \$9.50; \$15 shoes for \$4.49, etc.

"We do not hold that the mere use of comparative prices is unethical or wrong.

"We do maintain, however, that the use of comparative prices and comparative values is subject to

It is worth while to keep in mind the fact that AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western hardware and metal prices corrected weekly. You will find these prices on pages 44 to 49 inclusive.

great abuse and tends to undermine confidence in advertising.

"It tends to educate the public to the belief that a regular price on merchandise carries an exceptionally large profit for the merchant, and that it is not prudent to buy until goods are advertised at a reduction.

"It tends to educate the public to become bargain-hunters.

"The effect upon the department buyer is to do exactly what the public suspects, place a high mark-up on his goods that he may advertise them at a reduced price and still make a reasonable profit.

"The shopper learns to look and wait for a reduced price before purchasing and even then questions whether or not she is getting a real bargain.

"The whole tendency of the extreme use of comparatives is, we believe, to destroy confidence in advertising and in the merchant's making extravagant use of comparatives.

"Thereby it renders it necessary for such merchant to spend ever increasing sums for advertising.

"In the meantime his department heads are tempted to make ever increasing claims of reductions to stimulate the jaded public appetite for bargains.

"The \$200 dress advertised on sale at \$75 may have actually sold at the higher price at the beginning of the season.

"The merchant is probably taking a considerable loss at the lower price, but it is hard to make the public believe that he is selling goods at an actual loss.

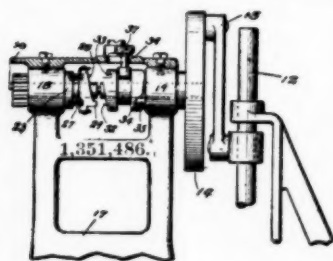
"We know it is often done and that it is good merchandising to close out broken and unseasonable lines, but the general public does not.

"The women who paid the higher price earlier in the season believe the merchant profiteered; and the merchant suffers through loss of confidence and prestige.

"The Better Business Bureau asks Indianapolis merchants, if they feel they must use comparative prices, to use them with care, that their use may be more effective."

Is Granted Patent Rights for a Washing Machine.

Nevvens N. Nunn, Maplewood, Missouri, assignor to The Almetal Manufacturing Company, Maplewood, Missouri, a Corporation of Missouri, has procured United States patent rights, under number 1,351,486, for a washing machine described in the following:



In a clutch of the class described, a pair of rotatably mounted aligned shafts, clutch members mounted to rotate with and move lengthwise upon said shafts, a lever provided with locking pins for shifting one of said clutch members lengthwise upon its shaft and locking said member in position, yielding pressure means for resisting the movement of the other one of the clutch members away from the man-

ually operable clutch member, and a bearing provided with a pin for engaging the first mentioned clutch member.

Maintain Level of Prices of Paint Materials.

It is generally believed that a great building movement is in the making as soon as the present strikes have been settled.

While there have been many price cuts as a bait to buyers, there has been no inclination on the part of the manufacturers of mixed paints to lower their quotation list, as advance orders are still quite plentiful, raw materials are scarce and the cost production has not decreased.

The consumption of white and red lead continues extremely good for this season of the year, and corrodors are busy attending to production and trying to catch up with deliveries.

There is still a good demand for zinc oxide from the paint industry, but as the demand from the automobile tire trade has fallen off materially quite a little resale supplies have appeared in the market.

It will be a long time before the makers of barytes will be able to catch up with the demand and prices are nominally unchanged. Blanc fixe is sold up for a long time ahead.

There has been a little falling off in the demand for some dry colors, but it is not expected that business will become very active until after the election.

Folders of domestic iron blues continue to ask \$1 a pound, although it is understood there are some available during the remainder of this year and new orders are being taken up to September, 1921.

Reds are strong in tone, with Venetian and the oxides in particularly small supply and firmly held.

Greens and yellows are well held and blacks are moving freely into consuming channels.

There is a little better demand for varnish gums, and dealers look for better business this fall, as consumers have been holding off as buyers for some time.

Holders are now quoting prices nearer to actual sales.

There is a good demand for putty, and producers are well engaged.

Stocks of whiting are small and prices hold firm under a good demand.

Produce Your Best.

Every man who produces anything owes it to the world to do what he can to insure that his product, in its final disposition, is used to its finest, most helpful possibilities.

Keep the Money in Your Town.

Every dollar that goes to a mail order house is out of the community perhaps forever.

Every dollar spent in your own town is again spent there for many of the items necessary to the conduct of a business.

Only that portion that goes for the replacing of merchandise leaves the town.

Good Ideas for Window Display

*Practical Lessons from Exhibits in AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition.
How to Get More Passers-By to Come into Your Store.*

DISPLAY OF MISCELLANEOUS TOOLS IS EFFECTIVE.

The building instinct is one of the oldest and strongest survivors from our remote ancestors.

Only about one man out of every seventy-eight million is indifferent to the appeal of tools.

No display of millinery fresh from Paris, France, has half the allurements for women that a display such as that shown in the accompanying photograph possesses for men.

This miscellaneous showing of tools was arranged

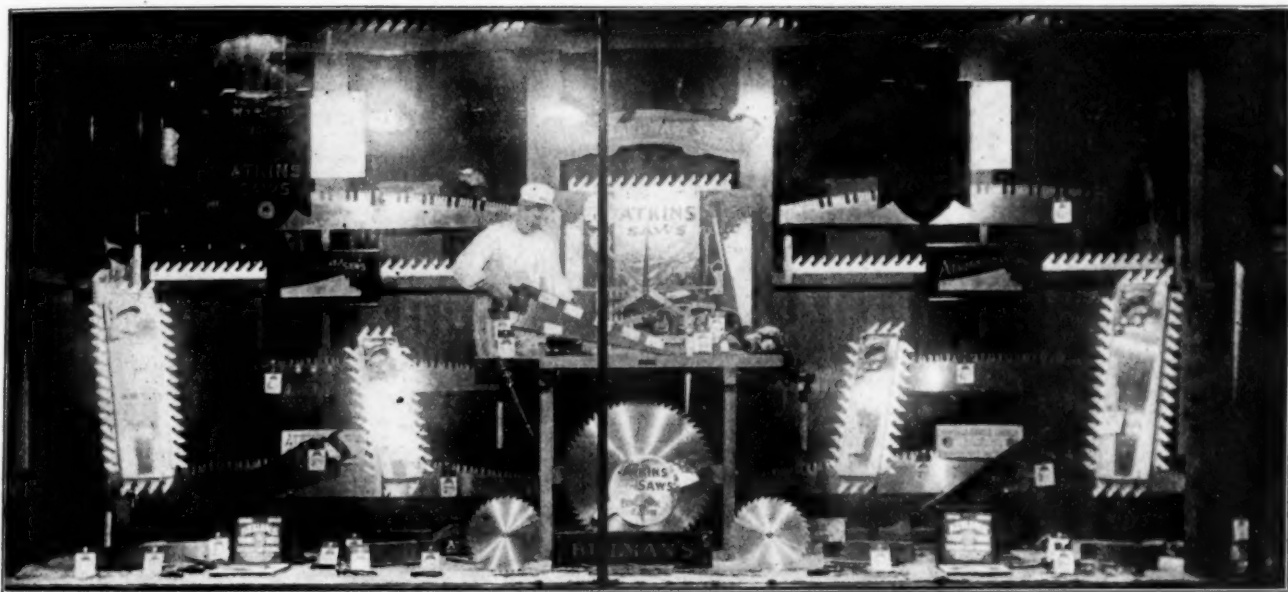
for making fine cabinet work, tabourets, tables, etc., for the home.

To such men, the display under discussion has an irresistible appeal.

Here are presented practically all the tools which a handy man about the house or a skilled carpenter requires.

This exhibit of miscellaneous tools deserves to be commended for the excellent use which is made of manufacturers' advertising placards and posters.

There is no room for controversy concerning the



Window Exhibit of Miscellaneous Tools Arranged by Edwards and Chamberlin Hardware Company, Kalamazoo, Michigan, Awarded Honorable Mention in AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition.

by the Edwards and Chamberlin Hardware Company, Kalamazoo, Michigan.

It was awarded Honorable Mention in AMERICAN ARTISAN AND HARDWARE RECORD Window Display Competition.

The central figure in the display, as the conductor of an orchestra, unifies the varying suggestions of the entire exhibit.

One of the impressions conveyed by this arrangement is a very desirable impression to produce upon the prospective buyer.

It is the idea of having sufficient tools for every reasonable use.

The carpenter in the exhibit who is sawing the board has within easy access chisels, spirit levels, saw filing vise, bit and brace, adze, tool grinders, hammers, light and heavy, pliers, and scores of other tools which help him produce fine accurate work.

There are many householders who take pride in having an extensive assortment of tools and a work bench for doing odd jobs about the house as well as

superior selling advantages of nationally advertised and standardized commodities.

The tools shown in this window display are in the first class as to quality, service, and reputation.

The only flaw in this exhibit is the omission of price tags.

States the Law Regarding Lost Property Found in Store.

From time to time it happens that some employee of the hardware store finds a purse or other property lost by a customer.

It is well for the proprietor of the store to know precisely what the law is regarding the disposal of such property.

The law on the subject in practically every state of the union is that the finder of lost property has a clear title against all the rest of the world except the owner.

If a sum of money, for instance, is found in a store,

the proprietor has no right to demand it because it was found on his premises.

He could enforce regulations made with his employes regarding property so found, but the public would not be affected thereby.

The police have no special right in this connection, unless conferred by statute.

If the finder attempts to conceal the fact that he has lost property in his possession he may be prosecuted for larceny.

Makes a Combination Garbage Can and Ash Sifter.

The average house owner will welcome the combination garbage can and ash sifter, which is manufactured exclusively by the Mahoning Foundry Company, Youngstown, Ohio.

It is constructed of heavy galvanized sheets. The



The Three Parts Which Make Up the Combination Ash and Can Sifter, Manufactured by the Mahoning Foundry Company, Youngstown, Ohio.

top is wired and beaded to insure the maximum degree of strength and rigidity.

The Mahoning combined garbage can and ash sifter is said to be absolutely dustproof and leak-proof.

The ash sifter part is built upon the same principles as the placer miner's outfit.

Its operation is very simple. The lid is closed and the sifter is rocked to and fro on its round base for about half a minute.

It is then allowed to stand for a minute or so before removing the lid. This is for the purpose of letting the dust settle.

The manufacturers point out many advantages of economy in the "Mahoning Combination." Prices and descriptive literature may be had by writing to the Mahoning Foundry Company, Youngstown, Ohio.

Dealers Have Many Prospective Customers for Knives.

A feature of the growth of the American cutlery industry during late years has been the rapid development of the manufacture of tool knives.

There is something spectacular in the evolution of the safety razor, which is possibly the most revolu-

tionary of all American inventions in the field of cutlery-making.

The work of the tool knife maker is less appreciated by the man in the street who does not realize that the humble knife takes many shapes and is put to many industrial uses hidden from his eye.

But for every kind of pocket knife or pair of shears manufactured in the United States there are possibly a dozen varying forms of tool knives, ranging from the common kitchen knife to the complicated knives used by such specialized industries as fur tailoring, wood carving and others.

There are at least 100 various shapes of butcher knives in the market, each having its special shape and use, and the supply of standard knives has to be supplemented by the manufacture of specially designed knives used in the large slaughter houses.

Housewives, anxious to make their kitchen work easy will find several dozen shapes of knives made for the special use in the kitchen if they will only take the trouble to ask for them.

The gardener is a very exacting user of knives. But the tool knife industry provides him not only with the ordinary pruning knives, but special knives are made for cutting asparagus, destroying the roots of weeds, and trimming shears of many forms.

In the making of tool knives, as in the manufacture of pocket knives, scissors, razors and table cutlery, America has come to be recognized over the world as the leading producer of superior blades.

Gets Trade-Mark Registered.

United States Patent Office registration has been obtained by the Consolidated Tool Works, Incorporated, New York City, under number 120448, for the trade-mark shown herewith. The company claims use of this trade-mark since June 30, 1919. No claim is made to the words "Consolidated Tool Works, Incorporated."



The particular description of goods to which it is applied is hand and breast drills for boring holes, braces for boring holes, planes for smoothing surfaces of iron, steel, and wood, and chisels, trowels, knives, screw drivers, pliers, and chucks.

Distributes Artistic Counter Advertising Plate.

A distinctive advertising help is furnished to dealers by the Savage Arms Corporation, Utica, New York, in the form of a prism-shaped, glass-covered counter display plate mounted on a wooden base.

Beneath the glass are the words Savage Arms in glistening red letters with a gold outline.

In the left hand corner is an oval with gilt background bearing in glistening red the trade-mark of the Savage Arms Corporation.

These artistic advertising aids are free to dealers and prospective dealers in "Savage Arms" guns and ammunition and may be obtained from the Savage Arms Corporation, Utica, New York, upon request.

The Dead Beat Can Be Changed into a Good Credit Risk by a System of Dealer Cooperation.

Exchanging Credit Information Is the Best Way to Help Retailers Keep Their Books Free from Bad Debts.

In an address before the convention of the Retail Merchants' Association of South Dakota, M. T. Coogan of Sioux Falls, South Dakota, gave some valuable advice and suggestions for changing the dead beat into a good credit risk. He said:

Successfully to cope with the dead beat in this state demands in spirit as expressed by the old darkey who ran a livery between two towns in northern Louisiana.

The trip was long and monotonous, and to while away the time, the darkey who had become proficient with the whip, would clip off a bud here and a branch there, etc.

He could touch that old mule of his on any part of its body.

One day while making this trip, to show his prowess he was performing for the benefit of his customer.

He was clipping off buds, twigs and branches. He clipped off a fine branch and then passed up a hornet's nest and took a branch above it.

His fare asked him why he didn't clip off the nest. He replied, "No suh, them boys are too well organized."

And so it must be with us. I personally do not believe in driving the dead beats out of South Dakota.

From past experience I have learned that they move fast enough without any driving and some times are hard to catch.

Let us educate them into prompt pay and we are doing a real service to ourselves and more so to the dead beats.

At the present time there is no organization. The logical starting point is with our Retail Merchants Association making a concerted action to educate the buying public as to what credit really is and what it means to be rated by the merchants as good pay.

I appreciate the fact that the word cooperation is going to be worked over time before this convention is over, but don't forget that it is the cause of this convention being a success.

It is one of the basic principles on which success is founded and must be used in connection with credit granting.

To illustrate this more fully, I want to tell you of a

The addition of a credit department to the local merchant's association will increase the benefits of cooperation. One reason why it is hard to form a local credit association is the lack of understanding between the merchants themselves. If the buying public knows that the merchants have rules and regulations as to the granting of credit and the collection of accounts you may be sure that they will do their part. But when they become lax, the credit association should immediately check up and call their attention to the fact. A uniform application blank should be used by all the merchants in such an association in the opening up of new accounts. The use of the application blank is based upon the theory that merchandise is just as valuable as money and that the same caution and information should be as necessary to the charging of merchandise as to the lending of money.

little incident that happened a few months ago.

A fellow member of the Retail Credit Men's National Association who resided in Lincoln, Nebraska, wrote us tracing a dead beat who had left Lincoln owing the merchants a considerable sum.

They had traced him to Sioux Falls, and had tried through their attorney to force col-

lection but had failed.

We were very glad indeed to look up this matter and found that he owed many of the merchants here and was rated slow pay.

Now the point that I wish to impress is, if the Sioux Falls merchants had spent a few minutes in letter writing at the time the accounts were opened, it would have saved them from probable loss.

In order to show the workings of a local credit organization, I would like to tell you what Sioux Falls has accomplished in the last few months.

They organized a retail Credit Men's National Association as a branch of their merchants association.

One of the first things they did was to compare and exchange credit information and the slow accounts.

The most striking feature of this meeting was the fact that nearly all the slow pays had representation on the books of all the merchants.

It is well known that when a person becomes a dead beat all the merchants suffer. The cure is exchanging Credit information.

That the buying public may understand and know the rules of the credit association, a series of advertisements were placed in the daily papers, telling why accounts should be paid promptly and explaining the rating system as used by the merchant in checking up the paying habits of the customers.

One is run every month reminding them of their credit obligations and credit standing.

There is no question that the campaign was a success.

It placed the merchant and the customer on a better footing and gave them an understanding as to credits which was never had before.

The association also adopted a uniform application

blank to be used by all merchants in opening up new accounts.

The use of the application blanks is based upon the theory that merchandise is just as valuable as money and that the same caution and information should be necessary as to the charging of merchandise as to the lending of money.

Now by this time some of you are beginning to wonder what all this has to do with your own business.

I have found in Public Accounting work that most merchants think there is no system that can be adopted to their own particular business.

In some cases merchants will state that they do very little credit business and know all of their customers and therefore are not interested in Credits and Associations, but even admitting this, it does not make these customers good.

The addition of a Credit Department to your local merchants association will lend considerable strength to the latter.

One reason why it is hard to form a local credit association is the lack of understanding between the merchants themselves.

I feel sure that the following incident in some form or other has happened to all of us.

John Jones has been a customer of your store for some time, he becomes slow, has a dispute and for some reason does not pay you.

He comes over to our store. I say to myself, "Well, Bill has always been a hard merchant to deal with, but I know I can handle you, John, so I will take a chance," and to John I say "Sure I will trust you," and then John starts in on me.

If the buying public knows that the merchants have rules and regulations as to the granting of credit and the collection of accounts, you may be sure that they will do their part.

But when they become lax the credit association should immediately check up and call their attention to the fact.

The local credit association idea is worth serious study. The fact that this convention is a success is sufficient proof as to the possibilities.

The same feeling that prompted your attendance to this convention should dominate your local association.

Now to move up a step, your state organization should have a credit department for the benefit of the local one.

There must be a head and the logical place is with your executive officers. I wish at this time to suggest that this subject receive serious consideration at the business meeting.

Now the top is next—the Retail Credit Men's National Association. This organization is composed of about eight thousand live retailers who know and appreciate the value of credit.

It was organized for the purpose of bettering credit condition in all parts of the United States and when you consider that every state and over 490 cities are represented, you can readily realize the magnitude and strength of this organization.

In the last six months it has located over one thousand persons who had skipped leaving unpaid accounts.

Also it has issued over six thousand check warnings and has captured and prosecuted 187 of these fellows.

When you consider that according to late figures merchants and banks are losing over thirty million dollars a year by these check artists you can see that what this feature alone means.

The Credit World is free to members. By forming a local association the dues are only \$3 per year per member which includes the Credit World.

This association in no way interferes with your state organization, but on the other hand naturally strengthens it.

Support it and carry the emblem on your statements. In our own particular case, we have found this alone to be sufficient to increase our collections.

Now, to recapitulate—start a local credit association. This can be formed in every town.

Join the national association and get the vision and experiences of the various credit men in all parts of the United States.

You have all received copies of the magazine and application blanks, sign up and help put over a big work.

Remember above all in these changeable times, that the small margin of profit demands close collections.

Tell your fellow merchants about your accounts and he will tell you his experiences and both of you will profit to the detriment of the dead beat.

Now, to revert to the subject assigned to me—it is not my purpose nor intention to tell you how to drive the dead beats out—but rather that we drive him off our books.

Educate him into a real character who will value his credit and then bring him back on the books as a valued citizen of South Dakota.

Registers Ready-Mixed Paints Trade-Mark.

Under number 120411, United States Patent Office registration has been granted to E. I. DuPont De Nemours and Company, Wilmington, Delaware, for the trade-mark shown in the accompanying illustration. No claim is made to the words



"A Washable Wall Tint" as a technical trade-mark apart from the mark shown in the drawing. The Company claims use of this trade-mark since January 1, 1910. The particular description of goods to which it is applied is ready-mixed paints.

What are Your Windows Worth.

How much would you take to rent out your show window during the month of December?

If your answer is in terms of dollars and cents, we venture to say it would be about one-half the amount of your whole shop rent.

At any rate, the window does represent one-half the store rent; which is proved by the rent of the store just overhead, "one-flight-up" shop with no street front—procurable at about 50 per cent less than you are paying.

In order profitably to realize on your big store in-

vestment and the big window for which you are paying so dearly, why not dress that window so as to make it pay the whole rent of your shop?

Assumes Post as Sales Manager of Chain Products Company.

An intimate knowledge of all the intricacies of the trade joined with an uncommonly pleasing personality, render the appointment of A. B. Way as District Sales Manager of the Chain Products Company, Cleveland, Ohio, a most desirable addition to that company's staff.



Until a short time ago, Mr. Way was Secretary and General Manager of the Bridgeport Chain Company, Bridgeport, Connecticut.

In his new capacity of District Sales Manager for New England, of the Chain Products Company, he will have his headquarters at the company's New York office, 150-152 Chambers Street.

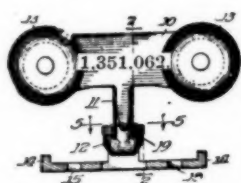
Before coming into the chain industry, Mr. Way had a wide and varied experience in New England manufacturing establishments.

His familiarity with the chain industry led to his election as Chairman of the Board of Weldless Wire Chain Manufacturers at Washington under the jurisdiction of the War Industries Board during the period of our participation in the Great European conflict.

Because of his high ideals coupled with shrewd judgment, Mr. Way has earned the respect and gained the friendship of the entire chain industry.

Secures Patent Rights for a Door Hanger.

Under number 1,351,062, United States patent rights have been secured by George Rhines, Danville, Illinois, assignor to Allith Prouty Company, Danville, Illinois, a Corporation of Illinois, for a door hanger described in the following:



A slidable door hanger, consisting of a wheeled carriage and a door member, one of said members having an upright shank provided with a cross-head extending in the direction of the path of travel of the carriage, said head having face portions sloping transversely in opposite directions from a median line extending longitudinally of the head, the other member having a continuous stirrup provided with a slot of a

size to receive the cross-head therethrough, the cross-head lying transversely of the slot with its sloping portions in cooperative relation with the inner walls of the stirrup, there being a contact engagement between the head and the stirrup in the direction of the length of the head to prevent relative tilting of the members in the direction of said contact.

Organization Must Be Broad.

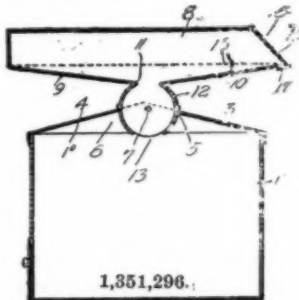
When you begin to organize, it is not long before you realize that organization is expansive.

In this day, when you organize an industry locally, you find immediately there is a necessity for co-operation with other organizations of that industry, and you organize the industry nationally.

Then it is not long before you see the necessity of co-operating with like organizations of the industry in other countries, and, having organized nationally, there is nothing to do but to fraternize internationally.

Gets United States Patent Rights for an Ash Sifter.

Isidor Lunenfeld, Brantford, Ontario, Canada, has procured United States patent rights, under number 1,351,296, for an ash sifter described herewith:



A container having a convex top portion provided at the apex with a slot, the side walls of said slot being formed to project above the top and to present opposed concave bearing surfaces, a sifter having the body portion thereof formed to present a slotted horizontally disposed tubular extension, said extension being disposed for oscillating movement in said slot with the outer surface thereof in sliding contact with the opposed bearing surfaces at either side of the slot, and pivots supporting the ends of said extension in said slot, said pivots being positioned midway between the sides of the slot and in a plane with the opposed concave bearing surfaces.

Push Your Goods into Sales.

In a survey of the different methods of many hundreds of stores of all sizes in the United States, the Business Research Bureau of Harvard University determined that more than one-fourth of the stores observed during the 1918 period turned their stock less than six times a year.

This covers all lines of retailing. A large number of retailers turned their stocks only four times a year.

The observations of the Bureau, based on returns from retailers during the past five years, have led to the conclusion that the net profits in the stores where an annual rate of stock turnover higher than ten is about two and one-half times as great in the percentage of net sales as in the stores with a stock turnover of less than six times a year.

There is also a definite relation between the total

expense of selling and a high rate of turnover.

An instance is given of one business with the lowest total expense which had a stock turnover record of 18.4 times a year.

Other things equal, profits increase directly with the turnover.

Naturally, regular stock turnover is involved in the operation of a business, but it is important that a store which does not have a healthy turnover should attempt to increase the rate.

Trade Opportunities in Foreign Lands.

The Bureau of Foreign and Domestic Commerce, through its Special Agents, Consular Officers and Commercial Attachés, is receiving information of opportunities to sell hardware and kindred lines in several foreign countries. Names and locations will be supplied on request to the Bureau in Washington or its District Offices. Such requests should be made on separate sheets for each opportunity, stating the number as given herewith:

33671—A commercial agency firm in Sweden desires to be placed in communication with exporters with a view to securing the sole agency in Sweden and the Baltic Provinces for the sale of American goods. References.

33672—A commercial agent from England is in the United States and desires to secure an agency for the sale of hardware, labor-saving devices, agricultural implements, machine tools and iron and steel products. References.

33674—A mercantile firm in Mexico desires to purchase new and rebuilt cash registers, etc. Quotations should be given c. i. f. El Paso, Tex. Correspondence may be in English. References.

33676—A firm of selling representatives in the British West Indies desires to obtain illustrated catalogues and prices of aluminum ware, cutlery, enameled ware, galvanized ware, hardware, paints, etc. No reference offered.

33683—The purchase is desired by a company in Scotland of hickory, ash and other handles in carload lots. Quotations should be given f. o. b. New York. References.

33687—A merchant in Spain desires to purchase and secure an agency for the sale of twist drills and machine tools in general. Quotations should be given c. i. f. Spanish port. Correspondence may be in English. References.

33690—A commercial agent established in Argentina, at present in the United States, desires representations of manufacturers for the sale of American goods. Reference.

33692—The representative of a trading company in South Africa is in the United States for a short time and desires to secure an agency for the sale of hardware, agricultural implements and other well-advertised American merchandise. Reference.

33693—A mercantile firm in Spain desires to receive catalogues and prices of enameled kitchenware. Correspondence should be in Spanish.

33698—The representative of a firm in Australia is in the United States and desires to purchase and secure an agency for locks, butts, hinges, wood screws and general builders' hardware. Reference.

33702—A merchant in Brazil desires to secure an agency and the direct importation of tin plate, iron sheets, barbed wire and iron wire for the manufacture of screws. Quotations should be given c. i. f. Brazilian port. Correspondence may be in English. References.

33705—The representative of a sales company in Argentina has recently arrived in the United States and desires to be placed in communication with manufacturers for the agency of hardware and other kinds of merchandise.

Coming Conventions.

American Hardware Manufacturers' Association, Marlborough-Blenheim Hotel, Atlantic City, New Jersey, October 20, 21, and 22, 1920. F. D. Mitchell, Secretary-Treasurer, 4106 Woolworth Building, New York City.

National Hardware Association, Marlborough-Blenheim

Hotel, Atlantic City, New Jersey, October 20, 21, and 22, 1920. T. James Fernley, Secretary, Philadelphia, Pennsylvania.

American Washing Machine Manufacturers' Association, Hotel Sherman, Chicago, Illinois, November 10 and 11, 1920. E. B. Seitz, Secretary, 10 South LaSalle Street, Chicago, Illinois.

Automotive Equipment Association, Coliseum, Chicago, Illinois, November 15, 16, 17, 18 and 19, 1920. William M. Webster, Commissioner, 1813-1818 City Hall Square Building, Chicago, Illinois.

Automobile Accessories Branch of the National Hardware Association, Coliseum, St. Louis, Missouri, November 30, December 1, 2, and 3, 1920, headquarters, Hotel Statler. T. James Fernley, Secretary-Treasurer, 505 Arch Street, Philadelphia, Pennsylvania.

Southern Association of Stove Manufacturers, Evansville, Indiana, December 6 and 7, 1920. W. H. Cloud, Secretary, 216 Glendora Avenue, Louisville, Kentucky.

Texas Hardware and Implement Association, Adolphus Hotel, Dallas, Texas, January 18, 19, and 20, 1921. A. M. Cox, Secretary, 1808 Main street, Dallas, Texas.

Western Retail Implement, Vehicle and Hardware Association, Kansas City, January 18, 19 and 20, 1921. H. J. Hodge, Secretary, Abilene, Kansas.

Pacific Northwest Hardware and Implement Association, Seattle, Washington, January 18, 19, 20, and 21, 1921. E. E. Lucas, secretary, Hutton Building, Spokane, Washington.

Missouri Retail Hardware Association, Planters Hotel, St. Louis, Missouri, January 25, 26, and 27, 1921. F. X. Becherer, secretary, 5106 North Broadway, St. Louis, Missouri.

Indiana Retail Hardware Association, January 25, 26, 27 and 28, 1921. (Place to be announced later.) G. F. Sheely, Secretary, Argos, Indiana.

Oregon Retail Hardware and Implement Dealers' Association, Portland, Oregon, January 25, 26, 27, and 28, 1921. E. E. Lucas, secretary, Hutton Building, Spokane, Washington.

Kentucky Hardware and Implement Dealers' Association, Louisville, Kentucky, January 25, 26, 27 and 28, 1921. J. M. Stone, Secretary, Sturgis, Kentucky.

Nebraska Retail Hardware Association, Hotel Rome, Omaha, Nebraska, February 1, 2, 3 and 4, 1921. George H. Dietz, Secretary, Lincoln, Nebraska.

Wisconsin Retail Hardware Association, Milwaukee, Wisconsin, February 2, 3 and 4, 1921. P. J. Jacobs, Secretary, Stevens Point, Wisconsin.

Oklahoma Hardware and Implement Association, Oklahoma City, February 8, 9, and 10, 1921. W. B. Porch, secretary-treasurer, Oklahoma City, Oklahoma.

The Michigan Retail Hardware Association, Grand Rapids, Michigan, February 8, 9, 10, and 11, 1921. Arthur J. Scott, Secretary, Marine City, Michigan.

Iowa Retail Hardware Association, Des Moines, Iowa, February 8, 9, 10, and 11, 1921. A. R. Sale, secretary-treasurer, Mason City, Iowa.

Pennsylvania and Atlantic Seaboard Hardware Association, Incorporated, Convention and Exhibition, Philadelphia Commercial Museum, Philadelphia, February 8, 9, 10, 11, 1921. Sharon E. Jones, Secretary, 1314 Fulton Building, Pittsburgh.

Illinois Retail Hardware Association, Hotel Sherman, Chicago, Illinois, February 15, 16 and 17, 1921. Leon D. Nish, Secretary, Elgin, Illinois.

California Retail Hardware and Implement Association, San Francisco, California, February 15, 16, and 17, 1921. LeRoy Smith, secretary, 112 Market street, San Francisco, California.

Minnesota Retail Hardware Association, St. Paul Auditorium, St. Paul, Minnesota, February 15, 16, 17, 18, 1921. H. O. Roberts, Secretary, Metropolitan Life Building, Minneapolis, Minnesota.

Ohio Hardware Association, Columbus, Ohio, February 15, 16, 17 and 18, 1921. Hotel Headquarters, Deshler Hotel, Exhibition in Memorial Hall. James B. Carson, Secretary, Dayton, Ohio.

New England Hardware Dealers' Association, Mechanics' Building, Boston, Massachusetts, February 21, 22, and 23, 1921. George A. Fiel, secretary, 10 High street, Boston, Massachusetts.

New York State Retail Hardware Association, Rochester, New York, February 22, 23, 24, and 25, 1921. John B. Foley, Secretary, 607 City Bank Building, Syracuse, New York.

South Dakota Retail Hardware Association, Sioux Falls, South Dakota, February 22, 23, 24, 25, 1921. H. O. Roberts, Secretary, Metropolitan Life Building, Minneapolis, Minnesota.

Panhandle Hardware and Implement Association, Amarillo, Texas, May 8, 9, and 10, 1921. Troy Thompson, Secretary, Treasurer, Dalhart, Texas.

Hardware Association of the Carolinas, Charlotte, North Carolina, May 10, 11, 12, and 13, 1921. T. W. Dixon, secretary-treasurer, Charlotte, North Carolina.

Southeastern Retail Hardware and Implement Association (composed of Alabama, Florida, Georgia and Tennessee), Atlanta, Georgia, May 17, 18, 19 and 20, 1921. Walter Harlan, Secretary, 701 Grand Theater Building, Atlanta, Georgia.

Selling Automotive Accessories

How Hardware Dealers Can Increase Their Profits by Handling Standardized Automotive Accessories. Facts and Suggestions to Aid Them in Giving Better Service.

SELL MORE AUTO SUPPLIES.

The grocer or butcher can use his runabout on Sunday for pleasure, and during the week deliver goods. Why not sell him a slip-on body?

The farmer is a sure enough customer for a trailer. Just the thing he needs for bringing in garden truck, or produce, and for taking home supplies.

Keep after him, as though you were a car salesman.

The car is no longer a luxury; it is a necessity. Take in the business realm—feed is high and there are not enough horses,—a motor delivery covers three times the speed.

What does this mean to you? Are you prepared with the necessary energy?

Have you the goods on hand to keep these cars going? And, do you want some of the richest cream of the hardware business?

Have you the latest accessory catalog on your counter to show special lines?

Registers Trade-Mark for Spark Plugs.

Under classification number 21, namely, electrical apparatus, machines, and supplies, United States Patent Office registration has been granted to the Symms-Brownell Manufacturing Company, Sioux Falls, South Dakota, for the trade-mark shown in the illustration herewith. The Company claims use of this trade-mark since about March 1, 1918. Application for it was filed June 7, 1920. The particular description of goods to which this trade-mark applies is spark plugs.



Handle Only Reliable Tires.

The main thing is for the dealer to select those articles carrying a reputation for durability. The market in the past has been flooded by cheap goods in all branches.

This has been nourished along a great deal by the heavy demand, but as the source of supply is gradually becoming greater, unworthy articles are being weeded out of the market.

The first cost on automobile tire accessories is not to be considered but the actual cost when the article has worn out.

One of the biggest sources for marketing the accessory output is through the hardware trade.

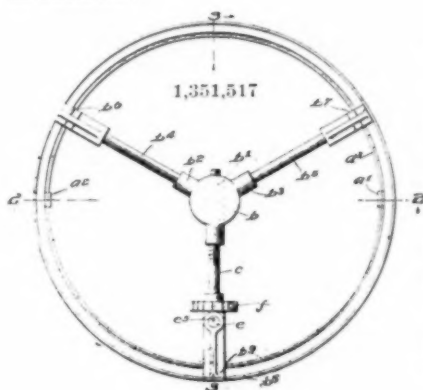
The reason is that in the larger cities hardware dealers are well fitted for taking on a tire and accessory department, and in the smaller places, such as

general stores, they also are in touch with their hardware jobber and, naturally, can obtain their supply in conjunction with other goods.

This eliminates the cost of handling the goods, as it is simply an additional line to the jobber, and at the same time lessens transportation charges by joint shipment.

Assigns Patent for Auto Tire Tube Carrier.

Charles Jerabek, Philadelphia, Pennsylvania, assignor to Louis Rothchild, Philadelphia, Pennsylvania, has secured United States patent rights, under number 1,351,517, for an auto tire tube carrier described as follows:



An auto tire-tube carrier, comprising a yoke having shoes, each having a recess in one part and in the other a shiftable foot, for clenchingly engaging a rim of a tire-tube, a spindle engaging said

yoke and provided with threaded and unthreaded portions and having a shoe with a shiftable foot, a sleeve mounted on said spindle and having a recessed shoe, a locking-means provided with a plunger and a notched ring threading with said spindle and arranged to permit the plunger of said means to engage a notch of said ring, substantially as and for the purposes described.

Display Your Accessories.

It will pay your automotive accessories prominently displayed. By bringing these goods before your customers persistently you establish your store firmly in their minds as the logical place to secure their supplies.

"The casual observer of today is the keen, critical buyer of tomorrow" in the auto accessory game. Probably a good seventy-five per cent of your customers are prospective purchasers of motor supplies whom you can influence by keeping the line before them prominently.

"The secret of successful advertising is in making it a part of the business it represents."—Wolstan Dixey.

Advertising Help and Comment

Send Us Copies of Your Advertisements. Let Us Help You Get Bigger Results by Advice and Suggestions. The Service Is Free. Don't Hesitate to Take Advantage of It.

A cross-eyed man has a hard time playing golf.

Oculists tell us that he sees with only one eye. His chief trouble



Keep Your Eye
On the Ball
When You Play
And on Our Prices
When You Buy.

**MYERS HARDWARE
and
SPORTING GOODS CO.**

We Repair Guns and Fit Keys.

18 E. Trade.

Phone 902

is keeping that one eye properly focused on the object.

The golfer in the Myers Hardware and Sporting Goods Company which is herewith reproduced from the *Charlotte News*, Charlotte, North Carolina, is certainly concentrating on his task judging from the large gobs of perspiration falling from his brow.

No particular articles are mentioned in the copy.

Its purpose is to present the

Myers Hardware and Sporting Goods Company as a source of supplies with the assurance that they may be had at reasonable prices.

This kind of advertising may be called institutional.

The illustration serves to draw attention to the Myers Hardware and Sporting Goods Company.

Publicity of this kind is effective, only when followed by specific advertising giving prices and descriptions of particular commodities.

* * *

The Customer Comes First.

There are two kinds of selfishness.

One is the disgusting selfishness which makes no allowances whatever for the needs or rights of others.

The other is the selfishness which obeys the law of nature and seeks self-preservation first but recognizes that self-promotion can be had only by enlightened cooperation with others.

This form of selfishness is usually called enlightened self-interest.

Naturally every one is interested first in himself.

Your advertisements, therefore, must place the interests of the prospective customers first—not your own.

Don't waste valuable advertising space by telling the people about yourself as yourself.

It is good publicity to put yourself before the people—but only as being in a position to serve them and to give them satisfaction and not to praise yourself or to indulge in vain glory.

* * *

There is a sound and effective selling reason in the advertisement of Barnes and Nuss Company, which appeared in *The Herald*, Grand Forks, North Dakota.

It is contained in the line, "In preference to carrying until next

year we will sell at 33⅓ per cent discount."

The original of this reproduced advertisement measured six inches by three columns wide and strong emphasis was given to the statement of the amount of discount.

It seems to us that relatively larger type should have been used

1-3 OFF
— on —
LAWN MOWERS
DELAYED SHIPMENT
JUST ARRIVED
ALL SIZES
PLAIN AND BALL BEARING
In preference to carrying until next year we
will sell at
33⅓%
Discount
BARNES & NUSS CO.
Grand Forks, N. D.

in presenting the reason for this discount, namely, "In preference to carrying until next year."

* * *

Use Big, Readable Type.

Beware of fine print.

It is a strain upon the eye.

No one cares to read it.

The average person has to be deeply interested before taking the trouble to concentrate upon small letters in an advertisement.

You can use bigger type which is easier to read and, therefore, gives a better impression by cutting out needless words from your copy.

* * *

Illustrate Your Copy.

Display type is the dress of your ideas. Don't let the printer put your copy in slovenly clothes. Supervise the typographical make-up of your advertisement. Insist on neat-looking, attractive type and borders.

Warm Air Heating and Ventilating

*Better Installations. How to Sell More Warm Air Heaters.
Reports of Progress in Warm Air Heater Research Work.
Ventilating Factories, Garages, Theaters, and Houses.*

TELLS WHY COKE SHOULD BE USED FOR DOMESTIC HEATING.

Some useful information on coke is contained in a technical paper (No. 242) recently published by the Bureau of Mines, detailing the bureau's experiments which are intended to show that soft coal can be prepared by conversion into smokeless fuels, coke and gas, so that all the materials in the coal are used to the best advantage.

The authors of the paper are Henry Kreisinger and A. C. Fieldner.

The use of coke is recommended for heating houses because it is a clean and convenient fuel.

It eliminates smoke, reduces the necessity of cleaning the furnace and flues, requires less attention than coal, and gives a more uniform temperature in the house.

By burning coke for domestic heating, more soft coal will be used in by-product plants, which save many valuable by-products that are wasted when the coal is used directly in the raw state.

The by-products of popular interest obtained in the coking process are gas, light oils, ammonia and tar.

It may not be generally known that when one ton of soft coal is coked in a by-product plant, about 5000 cubic feet of gas is made available for outside use.

Moreover, the process of coking one ton of soft coal yields about 3 gallons of light oils suitable for motor fuel.

At present prices the heat in the light oil has about twenty times the commercial value of the same amount of heat in the form of coal.

When soft coal is burned in house-heating furnaces most of the light oil escapes unburned and is wasted.

By converting the coal into coke and using coke as a house-heating fuel, the light oil obtained as a by-product helps materially to replenish the decreasing supply of motor fuel.

Again, when soft coal is burned in its raw form in any kind of furnace, the ammonia, which contains the nitrogen of the coal, escapes into the air and is wasted.

It has frequently been proposed to build large hydraulic power stations to generate cheap electricity and use the electricity to obtain nitrogen from the air.

"Why," ask the authors, "should soft coal be burned in a raw state, discharging all its contained nitrogen into the atmosphere, and then expensive hydraulic plants be built to get back from the atmosphere part of the nitrogen wasted in burning the raw coal?"

Increased Value of Products of the Coking Process.

When one ton of soft coal having a market price of \$7.00 per ton is coked in a by-product plant the chief

products obtained have the value shown in the following table:

TABLE I.—VALUE OF BY-PRODUCTS OBTAINED BY COKING 1 TON OF COAL.	
Cost of 1 ton of coal.....	\$7.00
1 ton of coal produces—	
0.65 ton of coke, worth.....	6.00
5,000 cubic feet of gas, worth.....	5.00
3 gallons motor oil, worth.....	.75
9 gallons tar, worth.....	.25
25 lbs. ammonium sulphate, worth.....	1.25
Total value of products.....	\$13.25
Less cost of 1 ton of coal.....	7.00
Increased value	\$ 6.25

How to Burn Coke in House-Heating Equipment.

The directions for burning coke can be condensed into five rules, as follows:

1. Carry a deep bed of fuel; a bed about 18 inches thick gives best results.
2. Use very little draft after the fire is started and keep it always under control.
3. Do not stir the fuel bed; clean the fire in the morning, if possible.
4. Use sized coke; 1/2 to 2 inches for furnaces, boilers, and stoves; 1/2 to 4 inches for open grates.
5. Do not allow ashes to accumulate in ash pit.

Figures Shown by Tests.

Results of investigations of the value of different fuels, including coke, anthracite, and soft coals of various kinds, as fuel for house-heating furnaces will be published in a separate bulletin by the Bureau of Mines.

The results obtained thus far show that coke can be burned in house-heating furnaces much more efficiently than soft coal.

The results obtained with coke under a steam boiler of a size to supply 800 square feet of radiation are summarized in Table 2.

TABLE 2.—RESULTS OF TESTS WITH BY-PRODUCT COKE.

Proportion of boiler capacity developed	Average period between firing	Duration of tests	Overall efficiency
Per cent	Hours	Hours	Per cent
52	4	96	73
88	4	120	72
122	3	120	63

The table shows that more than 70 per cent of the heat in the coke was usefully employed in heating the house.

Some time ago the engineering experiment station of the University of Illinois made comparative tests of by-product coke, gas-house coke, Pocahontas coal, and Illinois coal.

The results of these tests are printed in Bulletin No. 19 of the University of Illinois.

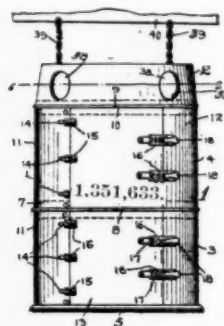
The tests show that with coke about 61 1/2 per cent

of the heat in the fuel was utilized in heating the house, whereas, with Illinois coal, only 48 per cent of the heat was utilized. Hence if the coal and the coke contained the same amount of heat, about $7\frac{3}{4}$ tons of coke will deliver as much heat into the house as 10 tons of the soft coal.

In addition to this higher efficiency from coke, the furnace and boiler room are kept clean with less work and there is no smoke to pollute the atmosphere.

Is Granted Patent Rights for Furnace Casing.

Under number 1,351,633, United States patent rights have been obtained by Cecil L. Epps, Van Wert, Ohio, for furnace casing described in the following:



A furnace casing including relatively spaced horizontally disposed rings, upper and lower body portions embracing said rings, each body portion consisting of relatively spaced removable sections, and doors intermediate the said sections, means detachably connecting certain side edges of said doors to the side edges of one of said

sections, and means adopted to be operated to detachably connect the other side edges of said doors to the side edges of the other of said sections, and to draw the doors and the sections into and hold them in close embracing engagement with said rings.

This casing can be opened up for cleaning out the dust and dirt that collects from the cold air ducts, also to examine the furnace for repairs without the use of tools of any kind, and by removing eight stove bolts the entire casing can be taken off and the furnace removed without disturbing any of the hot air pipes.

Good Installation Is of Prime Importance.

Speaking of the function of the sales departments of warm air heater manufacturers, E. C. Norris, Utica Heater Company, Utica, New York, declares that a good sales department should do something more than make sales.

Being in close touch with the public it is best able to criticize the factory's product and suggest improvements.

It is not the office of the sales department to explain away the defects of poor goods, but to have these defects corrected and the product kept abreast or ahead of the times.

Diplomatic words never satisfied a man with a poor heating plant and never will.

The wise sales manager will try to uncover every unsatisfactory installation of his product, make it right, and take measures to see that it does not happen again.

The dissatisfied user is a greater handicap to success than dull times plus shortage of capital.

The nature of the heating business makes us dependent on the installer to give satisfaction to the ultimate consumer.

Unconscientious or careless contractors should not be tolerated.

It is easy to find out whether the installer is doing his work badly or well and it is the duty of the progressive sales manager ruthlessly to eliminate the bad installer by refusing to sell him.

He should do it on one or all of three theories:

It is only fair to the purchasing public; it is for the good of the industry; it pays.

Take your choice of the motives, but eliminate the bad installer.

If done it will be the biggest thing this industry can do and will mean not lessened business, but enormously increased business and greatly increased pleasure in doing business.

Clears Away Misunderstanding of Heat Dissipation.

In a highly instructive discussion of a paper on dissipation of heat by various surfaces, read at the semiannual meeting of the American Society of Heating and Ventilating Engineers by T. S. Taylor of Pittsburgh, Pennsylvania, L. B. McMillan clears away some misunderstanding on the subject.

He points out that a thin layer of asbestos paper not only does not hold heat in warm air pipes, but, on the contrary, serves to increase the loss of heat by radiation. Among other comments on the paper, he makes the following observations:

This matter of differences in losses from bright and dull surfaces is a striking example of the effect of surface resistance. The author's conclusion that a thin layer of asbestos paper applied closely to a bright surface increases the loss of heat from the surface is, undoubtedly, correct and is in accordance with former tests of the same general nature.

Calling attention to this fact will do a great deal of good in dispelling the popular notion that magical results can be obtained by the thinnest kind of a layer of asbestos.

The thickness of asbestos applied in many cases is such that the effect is comparable with simply painting the name asbestos on the surface.

Asbestos is a wonderful material and by making proper use of its high heat-resisting properties, very desirable results may be obtained; but the thickness and kind of material must be proportioned to suit the conditions.

However, the fact that a thin layer of asbestos increases rather than decreases the loss from a bright surface should not be misconstrued as indicating, that a bright surface requires no insulation.

The increase in heat loss is due entirely to the change in the character of exposed surface.

The resistance to heat flow on a bright surface is greater than that on a dull surface in the ratio of about 0.7 to 0.5.

The addition of a thin layer of asbestos or other insulation, adds some resistance, but not enough to offset the decrease in surface resistance, due to the change from a bright to a dull, exposed surface.

If sufficient insulation is used, it is possible to bring the loss to just as low a point in case the in-

sulation is applied on a bright surface, as could be done by the same amount of insulation applied on a black or dull surface.

In the case of furnace pipes, the losses from the bright surfaces are so great that it would be wasteful to leave them bare.

Therefore, if the bright surface is to be covered, what it would lose if exposed, is of little importance.

The important thing is what one thickness of insulation will save when compared with another.

The case is a good deal like that of a man out in the cold clad in an undergarment.

He would not be as much interested in whether one undergarment is warmer than another, as he would be in getting into really adequate clothing.

So in the case of the bright versus the dull surface, one loses less heat than the other, but both lose too much. Therefore, a warm overcoat is needed in each case.

The author explains the increased heat loss from the papered surface on the basis of molecular area rather than on account of the brightness of the surface.

Painting the bright surface with a smooth coat of paint (smoother even than galvanized iron) will increase the loss more than putting on asbestos paper does.

Therefore, it would seem that molecular area had very little effect and that the difference was due to differences in radiation coefficients.

The radiation even at the temperatures considered, amounts to almost one-half of the loss from dull surfaces and considerably less from bright surfaces, so that the change in radiating power is sufficient to account for the differences noted.

It has been established by experiments that the radiation from a galvanized iron surface increases very materially, as the surface becomes tarnished.

Tests reported in *Engineering* (London) October 19, 1917, showed that galvanized iron exposed to the weather for one year offers practically no more resistance to radiation than black iron.

Even a few months' exposure decreased the radiation resistance very greatly.

This has no direct bearing on furnace pipes as they are not similarly exposed. However, even they do not maintain permanently their bright condition and the results of tests on bright surfaces can not be considered fairly representing the average losses from their surfaces.

Victor Heater Company Plans a High Grade Steel Furnace.

After considerable preliminary work and testing, the Victor Heater Company, Marshalltown, Iowa, has perfected a high grade steel furnace, which is expected to be placed upon the market about the first of January of the coming year.

The Victor Heater Company is a reorganization of the furnace department of the Marshalltown Manufacturing Company, of Marshalltown, Iowa.

The new concern will continue to manufacture the "Victor" and "La Plant" warm air heaters.

The company is erecting new buildings for the manufacture of its warm air heaters.

The structures will be modern in every respect. Ample facilities for big production are to be embodied in the plant.

A praiseworthy characteristic of the Victor Heater Company is its policy of constant effort toward improvement of standards.

With this end in view, the Company makes a close study of every scientific advancement in the industry so that the best practices of construction may be established in its shops.

Heating and Ventilating Trade Is not Free from Accidents.

The economic losses through avoidable accidents run into millions of dollars per year in our country.

Hence there is need for more concerted effort on the part of employers and workers to prevent this drain upon the nation.

Every industrial accident is a setback to the struggle for existence.

When it involves human injury it not only inflicts impairment and suffering upon the immediate subject, or brings about the bereavement to those to whom he is dear, but it increases the cost of production.

This means either diminished profits to the manufacturer or, if cost is as it ought to be the basis of the selling price, a higher price to the consumer.

The results are far-reaching and distribute themselves by devious paths.

There is the immediate loss of the material or product destroyed; the loss of production due to interrupted service; the loss of man power through the injury to the victim and consequent upon the interrupted work of other men; the cost of hospital service and medical attendance; the enhanced cost of insurance, predicated upon expectancy of accident, and increasing as the number of accidents increases; and numerous others that will suggest themselves to those who will analyze the subject further.

Aside from the humanitarian motive of preventing loss of life and physical suffering, there is enough of a material inducement to the manager and to the public to keep the number of industrial accidents at a minimum.

The employers' liability laws have made the employing class more conscious of this condition.

The large companies are paying a great deal of attention to safety methods and apparatus.

State industrial commissions, factory inspecting departments, etc., are doing good work, and the National Safety Council, an organization of manufacturers, is attacking the problem in a large and systematic way.

Under its auspices the Lehigh Valley in Pennsylvania had a safety week.

The extent to which accidents are avoidable is indicated by the fact that during this safety week there was a reduction of 92 per cent in mining accidents, 80 per cent in electric railway accidents, 30 per cent in all public accidents, and more than 90 per cent in accidents in the largest industrial plants in the district.

Practical Helps for Tinsmiths

No Two Jobs Are Exactly Alike. Therefore, the Sheet Metal Worker Has to Meet Each Difficulty as It Comes. Send Your Problems to Us. Let Our Experts Help You.

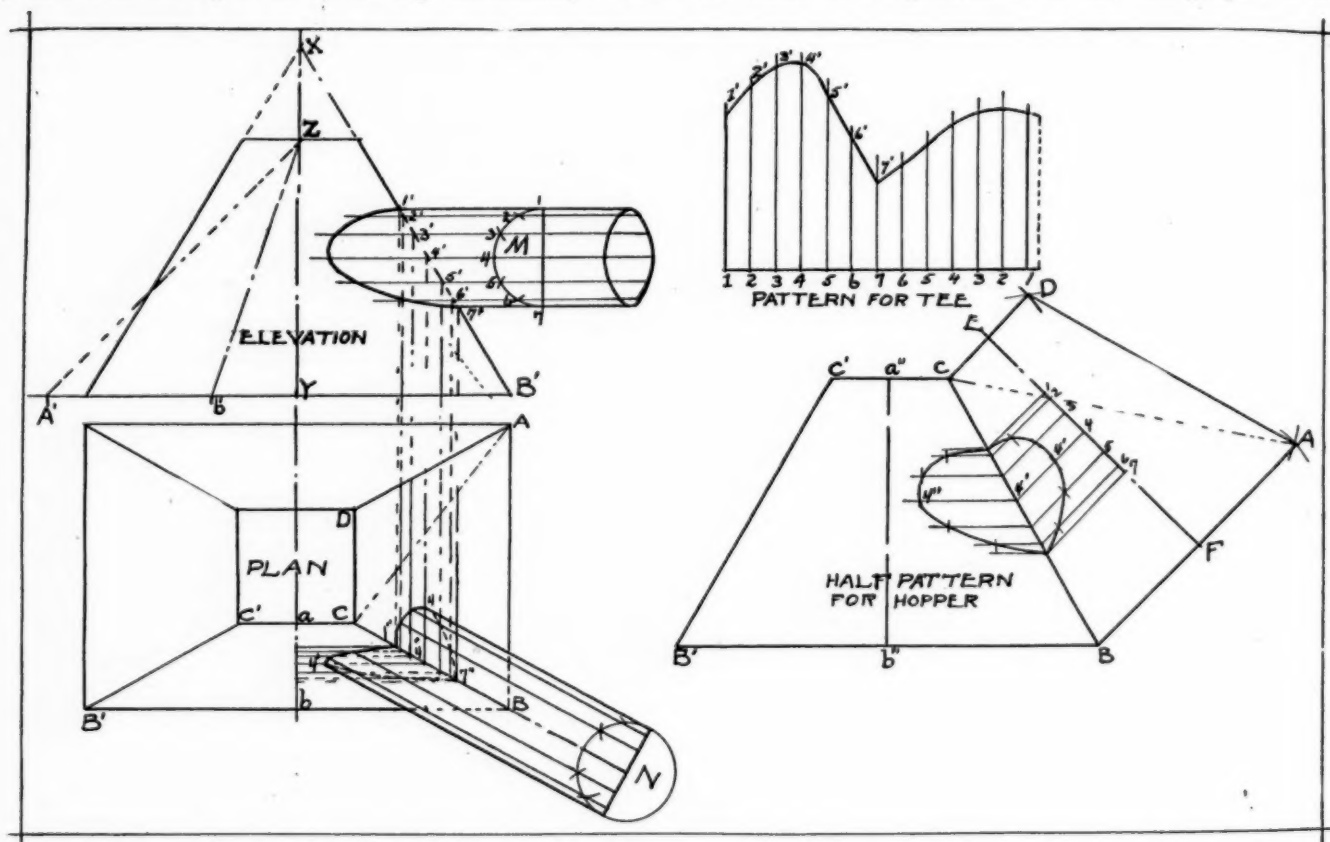
PATTERNS FOR CYLINDRICAL TEE FITTING HORIZONTALLY OVER HIP OF HOOD

By O. W. Kothe, Principal St. Louis Technical Institute and Instructor in the David Rankin, Jr., School of Mechanical Trades, St. Louis, Missouri. Written especially for American Artisan and Hardware Record.

In chemical plants many hoods are used, and very often other pipes must tap in to these boards. In this case we tap it in on the hip horizontally. The

So first draw the elevation making the length and height at pleasure. Then set the tee with section M as shown. Divide this in equal spaces and project horizontal lines to intersect the slant line X-B'.

Next draw the plan, making the base A-B-B' also D-C-C' at pleasure with the hip lines in place as shown. Now from all points as 1'-2'-3'-4', etc., in elevation drop lines into hip C-B of plan. From these new intersections 1''-4''-7'' extend lines parallel to base B-B' to center line a-b. Now describe section N, which is a reproduction of M, and project lines



Patterns for Cylindrical Tee Fitting Horizontally Over Hip of Hood.

same treatment can be applied when the hood would be inverted to take the place of a hopper. Observe by this method, only a tee placed horizontally will lines, and with dividers pick the length of lines in plan and set them off in pattern on lines of similar number as 1-1'; 2-2'; 3-3'; 4-4', etc. This enables tracing the miter cut.

To set off the pattern for opening, we must find the true length of long side. So pick the flare a-b and set as Y-b' in elevation. Then Z-b' will be the length as a''-b'' in pattern. Set the base lines on each side of it and draw hip lines C'-B' and C-B. Now pick the line A-C from plan, and set as Y-A' in elevation. Then pick Z-A' and using C in pattern as work on the hip, all other angles of tee requires a development of the true angle through hip.

in parallel to C-B. This gives you the intersections for tracing the miter line 1''-4''-7''-4'-1''.

To set off the pattern for tee pick the girth from M, or N, and set it off on a straight line as 1-1. Erect center cross arcs in point A. Continue the triangulation fashion until points D and A are established. Draw lines and half pattern is finished.

To fill in the opening, pick the lengths as B'-7'-6'-5'-4', etc., from center line and set as F-7-6-5-4, etc., in pattern. Square out lines parallel to base A-B and B' and then pick the plan lines as 4''-4'; also 4''-4' and set in pattern on each side of hip line as shown. When all points are established trace a line through intersections and the pattern is finished. Laps for seaming must be allowed extra.

Describes New Method for Testing Galvanizing. Portable Apparatus May Be Used in Field.

*Coating on Corrugated Culverts, Roofing or Sheathing
Can Be Fully Tested Without Injury to Metal.*

At the recent meeting of the American Society for Testing Materials, held in Asbury, New Jersey, an instructive paper on new methods for testing galvanizing was presented by Allerton S. Cushman, President Institute of Industrial Research, Washington, D. C. Its chief paragraphs are herewith reproduced for the benefit of the trade:

Galvanized sheet metal and wire are customarily purchased to specifications governing the weight of spelter in ounces per square foot. In dealing with sheet metal the weight of spelter is recorded for both sides so that a 2-ounce coating means 1 ounce on each side.

In dealing with wire or with sections of irregular shape, the weight of coating is variably reported as may be especially specified in advance. In 1915, J. A. Aupperle proposed the hydrochloric acid-antimony chloride method for stripping $2\frac{1}{4}$ -inch squares of sheet metal and further adapted the method for wire by calculating and tabulating ounces per square foot from the gram loss on unit lengths of wire of any given diameter and gage.

For articles of irregular surface, the method is not always adapted. Considering the estimation of weight of spelter coating on flat sheet metal, the Aupperle method is by far the quickest and most accurate of all methods heretofore proposed, when the measured $2\frac{1}{4}$ -inch flat samples are once in hand.

In fact, recent work has shown that even the addition of antimony chloride is a superfluous precaution and that sufficiently accurate results can be obtained by stripping with straight, concentrated hydrochloric acid.

The principal drawback, however, to all previously used methods of testing sheet metal lies in the practical difficulties encountered in obtaining the flat measured test pieces ready for stripping in acid. This difficulty is encountered especially in the field whenever it is necessary to check up the weight of spelter coating on corrugated culverts.

In such a case it is necessary to attack one end of a selected number of culverts in a consignment with drill and hacksaw, in order to remove samples.

These corrugated samples must then be conveyed to the nearest testing laboratory where a press of sufficient power is available to flatten out the sections.

There must next be sheared or machined to $2\frac{1}{4}$ -inch squares, preparatory to going to the laboratory where they are to be weighed and stripped.

All this consumes time and labor and in addition some of the zinc coating may be flaked off during the flattening and machining operations.

Convenient for Culvert Testing.

Another great disadvantage lies in the fact that the culverts sampled are mutilated and damaged,

which is no inconsiderable item when large culverts are under consideration.

Moreover, the sample must be taken from the end section only, unless the culvert is to be utterly ruined.

In at least one contested case of rejection of a lot of culverts which came under the author's observation, it was found that the middle sections of the culverts were made of cheaper metal than the ends.

All these facts accentuated the great desirability of a method of testing, which would, if such a thing were possible, fulfill the following specifications:

1. The test should determine weight of coating on any part of the surface of a flat sheet, corrugated sheet, or finished culvert that it is desired to explore.
2. The test should not destroy or mutilate the sheet or culvert under examination.
3. The test should be applicable to field conditions where laboratory facilities are not available.
4. The test should be applicable for testing wire and any small galvanized pieces.
5. The test should be at least as accurate as previous methods which have been used for determining weight of spelter coatings.

Experience with the Aupperle test had shown that all the zinc on the test piece was stripped in less than a minute, the equivalent hydrogen coming off with a rush and the end point of the reaction being sharply marked by the sudden cessation of the gas flow.

It was further observed that even if the antimony chloride was omitted, the end point was still fairly sharp so that it was easy to distinguish the moment when the zinc was all in solution and the iron or steel base began to be very slowly attacked by the acid. In fact, Mr. Aupperle had himself reached the conclusion that in making the regular stripping test in daily practice the addition of antimony chloride was unnecessary and superfluous, since it was easy to tell the point in time when the test piece should be lifted from the acid bath for rinsing, drying and weighing.

This experience led the author to believe that if it were possible to collect the hydrogen gas given off from a known area of any surface, the weight in ounces per square foot could be at once determined.

Preliminary calculations showed that if such a method of testing could be worked out, any error due to slight variations in the volume of gas collected, owing to variable temperature and pressure, would be practically negligible when translated into ounces per square foot of zinc.

On the other hand, the area of any spot under test must be accurately known, as error due to unknown or variable area would be considerable.

With these considerations in mind, experiments were begun, at first on flat galvanized sheets. The first apparatus made was constructed entirely of glass as shown in Figure 1. Although this glass apparatus

has now been entirely abandoned for a much simpler and more practical device, it is nevertheless shown here as the first step in the evolution of the test as it is now carried out.

The tests were made by smearing the bottom rim of the vessel *A* with dessicator grease and pressing it down firmly on the surface of a galvanized sheet.

A rubber delivery tube not shown in the figure connected the gas outlet tube *G* with a water displacement burette.

When all was ready, exactly 25 cubic centimeters of hydrochloric acid-antimony chloride solution was placed in the thistle tube *C*, stopcock *I* being closed;

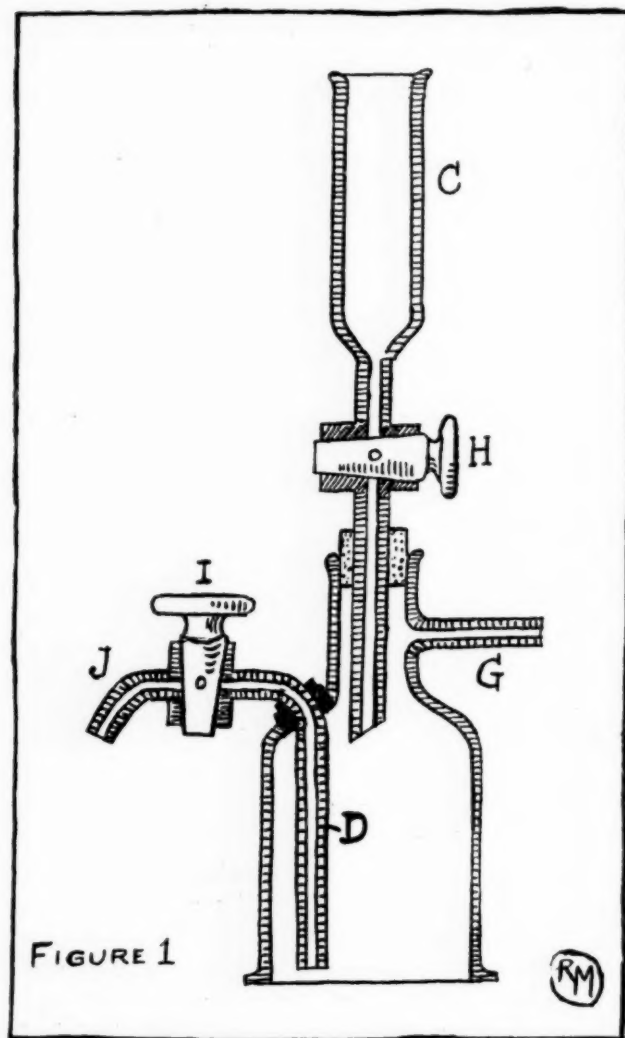


FIGURE 1
Cross Section of Apparatus for Testing Galvanized Coating.

stopcock *H* was then opened just long enough to permit the acid in *C* to run into vessel *A*.

The reaction was over in about 30 seconds after which it was necessary only to read the volume of hydrogen corrected for the volume of acid that entered the system.

The area of the spot covered by vessel *A* being known, the number of cubic centimeters of hydrogen multiplied by a factor gave the ounces of zinc per square foot.

The burette could be calibrated to read directly in ounces per square foot.

After a test was completed, water was let down through *C* and gently blown out at *J* until the residual acid and zinc chloride were all rinsed out.

The apparatus could then be lifted and the bare

spot on the sheet cleaned up by wiping and rubbing over with a little gasoline.

The known cross section area of the base of vessel *A* could then be checked up if desired with the actual area of the bare spot by the use of the planimeter.

It is obvious that if the dessicator grease used as a seal spread on the surface it might protect some of the zinc around the circumference from the action of the acid; although when the greasing was carefully and expertly done, error due to this cause was usually negligible.

Tests Results Are Uniform.

Very concordant results on flat sheets were obtained with this apparatus when all the conditions of test were fairly constant, although the actual variations in weight of coating on different spots on any given sheet always introduces an unknown factor, no matter what kind of test is used.

It was soon found, however, that owing to the comparatively large volume of cold air in the vessel *A* which had to be displaced by the hot hydrogen evolved by the reaction, considerable errors were liable to occur.

It was immediately obvious that the volume of *A* must be reduced and if possible all the air in the apparatus be displaced by water before any acid was allowed to enter from *C*.

The objections to an all-glass apparatus were numerous. It was expensive, fragile and could not be modified as improvements suggested themselves.

For these reasons the all-glass apparatus was at once abandoned. It was next suggested that hard-rubber rings closed with ordinary soft-rubber perforated stoppers could be substituted for glass.

Hard-rubber tubing of about $2\frac{1}{2}$ -inch diameter, however, could not be obtained. Experiments were projected therefore with lead pipe rings.

This material had the advantage that it could easily be cut and shaped to fit the contours of a corrugated surface but the walls of the lead ring tubes were so thick that it was found difficult to control the surface area attacked by the acid.

In the meantime, J. A. Aupperle and H. E. Brooks of the research department of the American Rolling Mill Co., who were cooperating with the author, reached the final solution of the problem by welding up rings of tinned sheet iron of No. 22 gage.

It was further discovered that the plastic clay, sold by artist supply houses for modeling, could be used to make an acid-tight dam or joint around the base of the rings when the apparatus was set down in place on the galvanized surface to be tested.

These expedients have made possible the development of a rapid and easy test which fulfills all the specifications as outlined above.

A complete testing outfit as finally developed consists of several tinned iron rings, a No. 12 two-holed rubber stopper, a glass thistle tube with ground glass valve, a graduated water displacement burette and a couple of feet of soft-rubber tubing.

The metal ring for flat sheets is ground true at the bottom and preferably made with a sharp beveled edge in order to cover a sharply defined area. Another ring is convoluted on the bottom for use on flat

corrugated sheets, while other rings are cut and ground with emery to fit the corrugations and curvatures of finished culverts of the various sizes in use.

Armed with this simple apparatus, an inspector can now quickly determine the weight of coating on any portion of the surface of a sheet or culvert.

The stripped and thoroughly pickled test spots can be regalvanized in the field by dusting them over with a mixture of granulated zinc and zinc chloride and heating with a small plumber's blow torch. The modified apparatus as used in this test is shown in Figure 2.

Proves Accuracy of Method.

The following report from the research department of the American Rolling Mill Company presents the experimental data and proves the accuracy of the method:

"The tester used for the experiments was a tinned No. 22-gage ingot-iron ring, $2\frac{1}{2}$ inch inside diameter and $1\frac{1}{2}$ inch high. A No. 12 two-hole rubber stopper was used, holding the glass-stoppered filling tube, and the glass exit tube. This exit tube was connected to the gas receiver. An inverted 500-cubic centimeter graduated cylinder answers this purpose well enough.

"In conducting the tests, the ring was held in place and sealed with plastic clay. The apparatus was then filled with water, the glass exit tube being at its highest point so that all air would be displaced by water. The exit tube is pushed down to a point just above the sheet and the rubber tubing connected so that gas may be collected in the gas receiver.

"About 30 cubic centimeters of concentrated hydrochloric acid of specific gravity 1.2 are placed in the filling tube and about 10 cubic centimeter allowed to enter the apparatus in order to generate enough gas to displace the water. Three cubic centimeters of 5 per cent antimony chloride solution made up with concentrated hydrochloric acid are added to the rest of the hydrochloric acid.

"As soon as gas appears in the exit tube, the tube is raised until flush with the cork and the rest of the acid admitted to the apparatus.

"When the evolution of hydrogen gas has ceased or only a bubble of gas comes every few seconds, the apparatus is filled with water to displace the gas. The gas is measured at 20 degrees, Centigrade, with the water inside the cylinder the same level as the water outside the cylinder. The number of cubic centimeters of hydrogen at 20 degrees Centigrade, multiplied by the factor, will give the weight of the spelter coating.

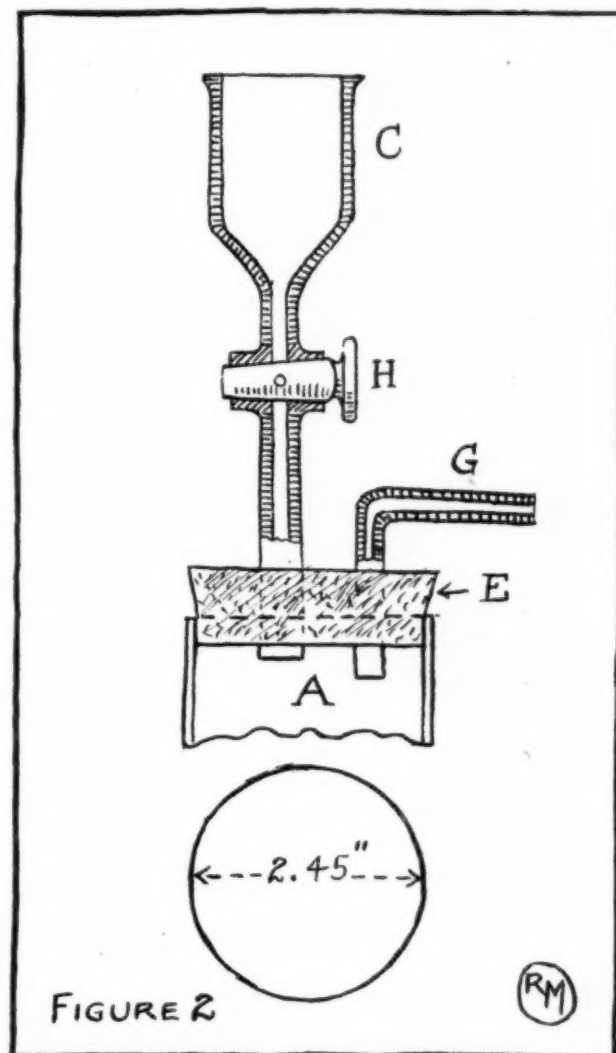
"The rings used on flat corrugated sheets and on formed culverts are cut to fit the various shapes and sizes of culverts, any inequalities being overcome by sealing with plastic clay.

"From detailed tests upon a flat sheet, corrugated sheet, and 12-inch culvert, the factors for weight of coating were obtained, and the maximum error in the determination due to the variation in the apparatus determined, and its comparison with the results obtained by the regular hydrochloric acid-antimony chloride method, using $2\frac{1}{4}$ -inch square samples cut from the sheets, and the weight of coating determined by weighing.

Calculations based upon figures given in the Smithsonian institution tables gave the equivalents of zinc in hydrogen at 20 degrees Centigrade, and 760 millimeters pressure. The figures are as follows:

Zinc	Hydrogen
0.00272 grams produces	1 cubic centimeter
0.2720 grams produces	100 cubic centimeters
0.5440 grams produces	200 cubic centimeters
1.8161 grams produces	300 cubic centimeters
1.0881 grams produces	400 cubic centimeters
1.3602 grams produces	500 cubic centimeters

"Experiments performed by placing the above indicated amounts of pure zinc shot upon a glass plate and running tests with the Cushman tester, gave results which were correct to within 5 cubic centimeters,



Improved Apparatus for Testing Galvanized Coatings.

in most cases being within 1 or 2 cubic centimeters. In the calculations, 1 cubic centimeter of hydrogen at 20 degrees Centigrade, was considered equivalent to 0.00272 grams of zinc.

"A 24-inch piece of No. 16-gage culvert stock, $27\frac{1}{2}$ inches wide was sheared into two 12-inch pieces, one piece being left flat and the other corrugated. On each, a series of eight sets of tests were run, each set consisting of two Cushman spots with a regular test between each one. The regular test consisted in cutting out a $2\frac{1}{4}$ -inch square piece, and determining the coating by Aupperle's hydrochloric acid-antimony chloride method, the weight of coating on the top side being determined by coating the bottom side with shellac. The weight of coating on the bottom side

was later determined in order to get the total coating on both sides, so as to compare this figure with the one obtained by doubling the figure given by the Cushman test.

"Inspection of the test data for the flat sheet will show that the weight of coating upon the galvanized sheet varied considerably, but that the average of the two Cushman spots was very close to the figure given from the regular test conducted on the piece taken between them. It is believed that the greatest variations are not due to error in the apparatus but to the variation of coating on that particular portion of the sheet. The variation in area of the spots, which was feared would cause a considerable error, is very small and in the 16 tests run would cause only a maximum error of 0.04 ounces per square foot, or an average error of only 0.02 ounces per square foot.

"Inspection of the data for this test will show the same conclusions as for the flat sheet. The tests were made upon the culvert ridges, and the areas determined with the planimeter from tracing of the spots made upon transparent paper.

"After starting this test, the culvert was found to be one from a special test, with a very heavy coating, and, therefore, more variation of coating than would be found upon a culvert having a 2-ounce coating. The results, however, could not be more satisfactory.

"Four Cushman spots were made in circular form upon three corrugation ridges and a regular test run upon a 2¼-inch square sample taken in the central portion between the four spots. It will be noted how closely this checks with the average of the figures from the four Cushman spots.

"Weight of coating on each Cushman spot was determined by the following formula:

$$H \text{ (in cc.)} \times 0.00272 \times \frac{5.08}{\text{area}} \text{ (sq. in.)} = \text{ounces per sq. ft. actual surface.}$$

The factor was determined:

oz. per sq. ft.

which is the same as

$$\frac{H \text{ (in cc.)}}{0.00272 \times 5.08} = \frac{0.0138176}{\text{Area (sq. in.)}}$$

"The average in all cases are averages from all tests and not the average of the maximum and minimum. The factors are as follows:

	Min.	Max.	Average	Greatest Variation
Flat sheet.....	0.00258	0.00266	0.00262	0.00008
Corrugated sheet....	0.00246	0.00251	0.00249	0.00005
12-in. culvert.....	0.00247	0.00250	0.00247	0.00003

By multiplying the greatest difference of factors (0.00266 - 0.00246 = 0.00020) by 600 cubic antimeters, a difference of 0.02 ounces per square foot is obtained.

From this it will be seen that even should the same factor be adopted for all kinds of tests, the greatest variation would not be over 5 per cent."

From all tests conducted, the writer concludes that the apparatus as now constructed and run will give results accurate to within 0.05 ounces per square foot, and that for ordinary work only two factors will be needed: a factor for flat sheets, and a factor for cor-

rugated sheets and 12-inch culverts or larger. For more exact work, factors for each size culvert can be determined.

It is believed that this apparatus will prove to be a great time-saving device in the determination of coatings on galvanized culverts.

Whitaker-Glessner Company Joins Big Merger.

With the purpose of increasing productive facilities and service, the Whitaker-Glessner Company, Wheeling, West Virginia, has joined the Wheeling Steel Corporation of that city.

Alexander Glass, chairman of the board of the Wheeling Steel Corporation, organized as a merger of the La Belle Iron Works, Whitaker-Glessner Company, and Wheeling Steel & Iron Company, comes from an essentially iron and steel family.

His father, Andrew Glass, was one of the original founders of the La Belle Iron Works at Wheeling in 1852.

Mr. Glass first engaged in the iron and steel industry in 1873 and between that period and 1890 was employed by several companies in that field.

In 1890 with others, he organized the Wheeling Corrugating Company and served as secretary.

In 1908 he became president of the Portsmouth Steel Company, Portsmouth, Ohio., having previously held the office of vice president.

His election to the presidency of the Whitaker-Glessner Company followed in 1910.

Later he became chairman of the board of Whitaker-Glessner Company.

He was born in Wheeling, July 24, 1859, and was educated in the public schools of that city.

Accurate Thinking Leads to Skill and Success.

On every wall in every department of a nationally-known industrial plant is posted the command, "Think!"

New employees sometimes are puzzled by it. Think? Aren't they always thinking? Isn't thinking an automatic process, like breathing?

But the fact is that most of us think we think when we aren't.

If you really stop to think you will discover that your mind is occupied less than half the time.

It is like an engine that never is speeded up to its full working capacity, and lies idle part of the day.

The mind is not an automatic machine. On the contrary, it is the most indolent member of your system.

It needs to be driven. It likes to go in ruts and loaf.

It likes the easiest way and dislikes thinking things through. It shuns exercise.

And, by the way, there is nothing more refreshing to the whole physical system than a spell of good, purposeful thinking.

Try it. Think!

Life is not counted by years.

Instructive Notes and Queries

The Service of This Information Bureau Is Free to Our Subscribers and They Are Urged to Use It Freely.

GIVES INSTRUCTIONS FOR RESHARPENING FILES.

Well-worn files are first carefully cleaned with hot water and soda; they are then placed in connection with the positive pole of a battery, in a bath composed of forty parts of sulphuric acid and one thousand of water.

The negative is formed of a copper spiral surrounding the files, but not touching them; the coil terminates in a wire which rises toward the surface.

When the files have been in the bath ten minutes, they are taken out, washed and dried, when the whole of the hollows will be found to have been attacked in a very perceptible manner.

But should the effect not be sufficient, they are replaced in the bath for the same period as before.

Sometimes two operations are necessary, but seldom more.

The files thus treated are to all appearances like new ones, and are said to be good for sixty hours' work.

Twelve medium Bunsen elements are employed for the batteries.

* * *

How To Tin Small Articles.

Place them in warm water, with a little sulphuric acid added to it, which will clean them.

Then powder some sal ammoniac, and mix it in the water, stirring vigorously until all is dissolved.

After washing the articles in clean water, place them in the solution for a few minutes and then place them near the fire to dry.

Procure a pan resembling a frying pan in shape, the bottom of which must be full of small holes.

The pot for melting the tin must be large enough to admit the pan for holding the articles.

Cover the bottom of the pan with the articles to be tinned, and after sprinkling a little powdered sal ammoniac over the surface of the molten tin to clear it from dross, dip the pan containing the articles into it.

After all the smoke has disappeared, lift it out and shake well over the pot, sprinkling a little sal ammoniac over the goods to prevent them from having too thick a coat, and then cool them quickly in cold water to keep them bright.

* * *

Cement Shingles.

From I. B. Allen, 425 East Main Street, Muncie, Indiana.

Kindly inform me who makes cement shingles.

Ans.—Acme Concretile Company, Milwaukee, Wisconsin; American Cement Tile Manufacturing Company, Oliver Building, Pittsburgh, Pennsylvania, Dearborn Concretile Company, Aurora, Illinois.

Celluloid Sheets.

From McDonald and Moore, 545 Seventeenth Street, Oakland, California.

We would like to know where we can purchase celluloid sheets.

Ans.—The Celluloid Company, 317 West Adams Street, Chicago, Illinois, and Parisian Novelty Company, LaSalle and Twenty-second Streets, Chicago, Illinois.

Sewage Lifts.

From C. C. Bruscke and Son, Good Thunder, Minnesota.

Please advise where we can buy an automatic sewage lift for private residence.

Ans.—Simplex Ejector Company, 1050 West Randolph Street, Chicago, Illinois; Ansonia Manufacturing Company, 15 Park Row, New York City; Blaisdell Machinery Company, Bradford, Pennsylvania.

Asbestos Shingles.

From I. B. Allen, 425 East Main Street, Muncie, Indiana.

Will you please tell me who makes asbestos shingles?

Ans.—Trus-Con Laboratories, Caniff and Grant R. R., Detroit, Michigan; Consolidated Sheet Metal Works, 661 Hubbard Street, Milwaukee, Wisconsin; Keasbey and Mattison Company, 222 West Lake Street, Chicago, Illinois.

Address Hess Heating System.

From Westlund Brothers, Lewis, Wisconsin.

Can you give us the address of the Hess Heating System who make furnaces?

Ans.—The Hess Warming and Ventilating Company, 5 North LaSalle Street, Chicago, Illinois.

Rail Fittings.

From Frederick H. Lord, Belle Haven, Virginia.

Please advise where I can buy one and one-half inch polished brass and galvanized rail fittings at an angle of 61 degrees and 119 degrees.

Ans.—American Safety Lamp and Mine Supply Company, Scranton, Pennsylvania; Hughes-Evans Company, Incorporated, 30 East 42nd Street, New York City, can furnish you with brass rail fittings. Crane Company, 836 South Michigan Avenue, Chicago, Illinois; Kelly and Jones Company, 135 Water Street, Pittsburgh, Pennsylvania, can supply you with galvanized rail fittings.

Glass Bottles.

From W. Atlee Croop, Goshen, Indiana.

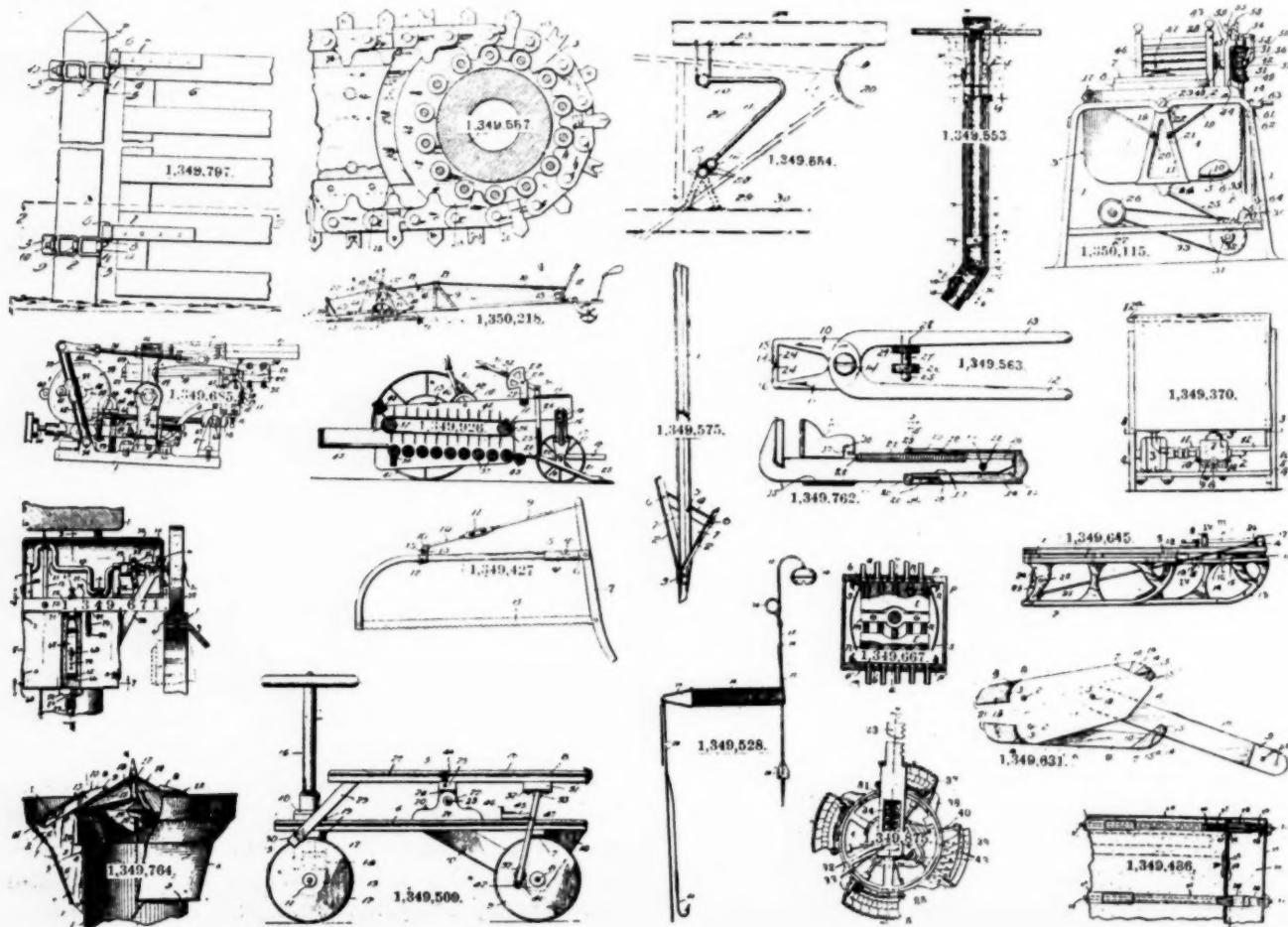
Will you please give me the names of manufacturers of one pint and quart glass bottles, such as can be used for soft drinks, catsup, and grape juice?

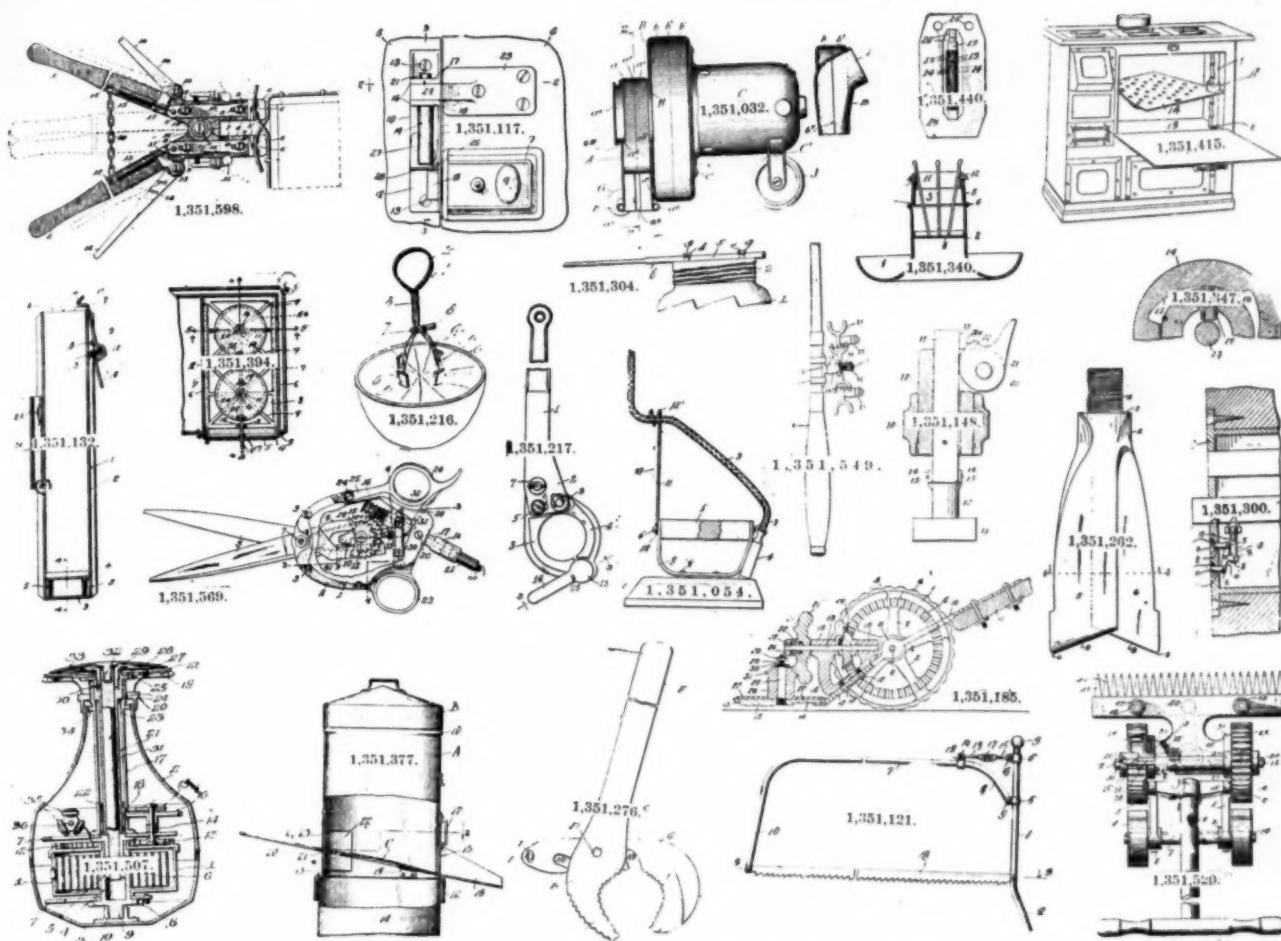
Ans.—Illinois Glass Company, Alton, Illinois; Western Bottle Manufacturing Company, 402 West Randolph Street, Chicago, Illinois; Marion Flint Glass Company, Marion, Indiana; Northwestern Glass Company, Saginaw, Michigan; North Baltimore Bottle Glass Company, Terre Haute, Indiana; Hart Glass Manufacturing Company, Dunkirk, Indiana.

Illustrations of New Patents

Watch This Page. Keep Yourself Informed Concerning Improved Devices Which May Save Labor in Your Shop or Add Another Source of Income to Your Retail Store.

- 1,349,370. Washing-Machine. William G. Dawson, Mount Vernon, N. Y. Filed Sept. 18, 1919.
- 1,349,427. Adjustable Handsaw. Galen McKenney, Bangor, Me. Filed Nov. 3, 1919.
- 1,349,436. Baking-Oven. Allen R. Ross, Seattle, Wash. Filed Jan. 13, 1919.
- 1,349,500. Toy Vehicle. Percy H. Herrick, Pittsburgh, Pa. Filed Oct. 13, 1917.
- 1,349,528. Fishing-Signal. Stephen Owsiak, Chicago, Ill. Filed Nov. 18, 1919.
- 1,349,553. Hand-Tool. Joseph Rene Ayotte, Chicago, Ill. Filed Oct. 1, 1919.
- 1,349,554. Superheater. John P. Badenhausen, Philadelphia, Pa. Filed May 27, 1916.
- 1,349,557. Chain Saw. George G. F. Boswell, Indianapolis, Ind., assignor of one-eighth to Virgil H. Lockwood and one-eighth to Ralph G. Lockwood, Indianapolis, Ind. Filed Sept. 14, 1914, Serial No. 861,604. Renewed Dec. 20, 1918.
- 1,349,563. Wire-Stripper. Charles T. Day, Oceanport, N. J. Filed Dec. 2, 1919.
- 1,349,575. Metal Fencepost. Edgare Spencer Lachmann, Chicago, Ill. Filed Sept. 18, 1919.
- 1,349,631. Wrench. Waldemar H. Spanier, Devils Lake, N. D. Filed Jan. 28, 1920.
- 1,349,645. Sled. Wilmer H. Yerkes, Pittsburgh, Pa. Filed May 22, 1920.
- 1,349,667. Pump. John A. Gogolinski, Drissa, Russia. Filed May 24, 1918.
- 1,349,671. Pump for Inflating Pneumatic Tires. Enoch P. Hultin, Flint, Mich. Filed Dec. 22, 1917. Serial No. 208,365. 2 Claims. (Cl. 152-11.)
- 1,349,685. Band-Saw-Filing Machine. Angus McMillan, San Francisco, Calif. Filed Dec. 9, 1918.
- 1,349,762. Wrench. Daniel Herlihy and Milan H. Fisher, Chicago, Ill.; said Fisher assignor to said Herlihy. Filed Oct. 17, 1919.
- 1,349,764. Ventilator. Charles Hofstetter, Peoria, Ill. Filed Oct. 4, 1918.
- 1,349,797. Gate-Hinge. Chester L. Williams, Chapin, Ill. Filed Nov. 24, 1919.
- 1,349,875. Rotary Plow. George A. Currier, St. Louis, Mo. Filed Feb. 2, 1918.
- 1,349,926. Sod Cutting and Disintegrating Machine. Robert L. Thompson, Troup, Tex. Filed May 10, 1920.
- 1,350,115. Washing-Machine. William H. Sargent, St. Louis, Mo., assignor to Wayne Manufacturing Company, St. Louis, Mo., a Corporation of Missouri. Filed Apr. 4, 1919.
- 1,350,218. Push-Rake. Alfred John Gibbs, Hay Springs, Nebr. Filed Mar. 12, 1917.
- 1,350,240. Tool-Clamp. William L. Ross, Jersey City, N. J. Filed Sept. 11, 1917.





1,351,032. Vacuum-Cleaner. Alva J. Fisher, Evanston, Ill., assignor to Hurley Machine Company, Chicago, Ill., a Corporation of Illinois. Filed Dec. 13, 1916.

1,351,054. Electric Sadiron. Edwin Miller, Hartford, Conn. Filed Jan. 19, 1920.

1,351,117. Lock Construction. Frederick A. Newhall, New York, N. Y. Filed Dec. 13, 1919.

1,351,121. Saw-Frame. Thomas Ouellett, Central Falls, R. I. Filed Oct. 4, 1919.

1,351,132. Case for Folding Rulers. James Harvy Rutledge, Pittsburg, Kans. Filed May 7, 1920.

1,351,148. Work-Clamp. Verne P. Alexander, Chicago, Ill. Filed Oct. 25, 1919.

1,351,185. Lawn-Trimmer. Ernest E. Muzzy, Canton, Ohio, assignor of one-half to Charles H. Ritterbush, Canton, Ohio. Filed May 17, 1919.

1,351,216. Grapefruit-Corer. Marie Watson Pifer, Sullivan, Ill. Filed May 20, 1920.

1,351,217. Pipe and Casing Tongs. Leroy L. Richard, Coalinga, Calif. Filed June 23, 1919.

1,351,262. Drilling-Bit. George Nymanning, Los Angeles, Calif. Filed Jan. 9, 1920.

1,351,276. Wrench. Albert H. Benwell, St. Louis, Mo. Filed Mar. 1, 1920.

1,351,300. Latch. Samuel H. Miller, La Junta, Colo. Filed Dec. 13, 1919.

1,351,304. Closure-Releasing Means for Jars. Walter M. Shelton, South Richmond, Va. Filed Feb. 13, 1920.

1,351,340. Match-Holder. Jacob E. Neahr, New York, N. Y. Filed Mar. 4, 1918.

1,351,347. Drill-Chuck. Charles Lyon Russell, New York, N. Y. Filed Dec. 6, 1918.

1,351,377. Ash-Sifter. Thomas Fred Fitzberger, Baltimore, Md. Filed Jan. 13, 1919.

1,351,394. Oven-Shelf. William Baird Martin, Beloit, Wis. Filed Feb. 11, 1919.

1,351,415. Oven-Shelf. John W. Coumerilh, Mullan, Idaho. Filed May 28, 1919.

1,351,440. Saw and Method and Means of Hardening the Same. Reinhart W. Pittman, New York, N. Y., assignor, by mesne assignments, to Henry C. Pittman, Hackensack, N. J. Filed Nov. 30, 1917.

1,351,507. Rotary Safety-Razor. Cap Bertrand Collins, Sioux Falls, S. D. Filed July 27, 1918.

1,351,520. Lawn-Mower. Joseph N. M. Keyzer, Lynchburg, Va., assignor to Southern Electro Steel Company, Inc., Lynchburg, Va., a Corporation of Virginia. Filed Sept. 30, 1919.

1,351,549. Fishing-Reel. Lawrence Benson, Kokomo, Ind. Filed Oct. 21, 1919.

1,351,569. Power-Operated Shears. Jesse P. Heil, Wheeling, W. Va. Filed Jan. 2, 1920.

1,351,598. Portable Hand-Tool for Stretching, Tightening, and Twisting the Free Ends of Wire Lengths. Clarence E. Wise, Washington, D. C. Filed Nov. 12, 1918.

Contains Many Suggestions

The reason for presenting every week in these pages a selection of recent patents relating to hardware, furnaces, stoves, and sheet metal is based upon a sound psychology.

Most of our big ideas in business come through an association of suggestions.

We see, hear, or read of a new device and it gives us a thought which develops into some gainful improvement in store or shop or supplies of stock.

Weekly Report of the Markets

General Conditions in the Steel Industry. Review of Prices and Tendencies in Sheet Metals, Pig Iron, etc.

PRODUCTION AND SHIPMENT OF STEEL ARE INCREASING.

Higher freight rates with an attendant increase in transportation movement have been a factor in the reduction of the unfilled tonnage in this respect, that much accumulated steel which has been stacked at the mill yards and warehouses has been moved to the consumer and the obligation therewith cancelled.

This movement in turn has relieved somewhat the congestion on the railroads thereby augmenting the movement of raw materials and fuel which in turn has allowed the leading interest and subsidiary companies to operate their furnaces and mills at a better rate, thus raising the volume of production.

Shipments accomplished during the past month are estimated at 1,200,000 tons of finished products, the largest since March while the production of steel ingots was probably 1,700,000 tons the largest output since June.

The volume of new business booked last month was approximately 960,000 tons, or the smallest since May, 1919.

As reflecting the upward trend in the iron and steel export trade was the report of the Department of Commerce last week showing an increase of some \$5,000,000 in the value of iron and steel exports from this country in July as compared with June.

Customs House returns show a total of 489,223 tons of iron and steel products and 29,647 tons of iron shipped in July, as against 402,707 and 17,075 tons, respectively, during the previous month.

The gain in the output of iron and steel in the country last month reflected the better transportation conditions of the country which have reduced the embarrassing accumulations of finished products at the furnaces and mills and increased the receipts of raw material and fuel.

Consequently an increase in the rate of operation was accomplished throughout the industry generally.

The report of the American Iron and Steel Institute issued at the end of last week stated that the August steel ingot production of 30 companies making 85 per cent of the country's total steel in 1919 was 3,000,432 tons, as against 2,802,818 tons in July.

Of this output, 2,200,645 tons were open hearth, 695,003 Bessemer and 5,784 other grades.

Steel.

Some reports have been received of a demand for steel plates by the railroads, but buying from this quarter is not yet of sufficient volume to cause comment.

The number of inquiries in the market may lead to large orders in the near future, however, in view of the fact that the railroads have been holding up their orders for so long a time.

The monthly payroll in Pittsburgh is now \$50,000,000, which is a new peace time record, and manufacturers are of the opinion that with the present rate of improvement in industrial operations the \$100,000,000 mark will be reached by the end of the year.

Copper.

There are reports in circulation that the leading producers have been booking a larger volume of orders recently and that the domestic consumers have started a buying movement to cover their last quarter requirements.

It has been generally felt throughout the trade that such a move would be inaugurated and the larger interests have firmly adhered to a flat 19 cents a pound in anticipation of the move.

But whether it has actually started or not is still a matter of doubt in the minds of some.

The stocks held by second hands in the outside market are limited and buying in any great quantity would soon make itself felt in this quarter and a raise in prices forced.

That a declining tendency instead of an advancing one characterizes the outside market was evidenced by the reduction of quotations on the New York Metal Exchange from 18.25 to 18 for spot and September deliveries, while October declined from 18.37½ to 18.25, November from 18.50 to 18.37½ and December from 18.75 to 18.50.

Tin.

A little more activity in the domestic tin market was experienced last week, although a greater part of the business transacted was forced liquidation, and the total amount of tin that passed hands, including outright sales and sales at auction, were 445 tons.

The market was somewhat easier, spot Straits falling off some 25 points and the 99 per cent grade the same.

The nearer positions of Straits shipments declined 25 points, but the later positions advanced about the same amount.

With a drop in sterling exchange of approximately 3 cents, tin in London underwent a net revision upward of approximately £3 10s on Straits and standard. The Far East market, on the other hand declined.

During the week the June-July position of Straits shipments declined from 45 to 44.62½; July-August from 45.12½ to 45; August-September from 45.12½ to 45; September-October was unchanged at 45.25, but the October-November position advanced from 45.25 to 45.37½ and the November-December position from 45.25 to 45.50.

The spot delivery of Straits declined from 44¾ to 41½, while the spot delivery of the 99 per cent grade dropped from 41¾ to 41½.

In the Chicago market, both pig tin and bar tin declined one-half cent per pound.

Lead.

There is no change in the domestic lead market conditions, but the leading interest did change its quotation at the beginning of this week to more nearly conform with buyers' ideas.

The reduction amounted to a half a cent a pound and it now quotes, 8.50 for New York.

The dealers in the outside market are quoting from 8.40 to 8.60 for New York and practically the same for St. Louis.

There were some 1,850 tons of foreign lead bullion imported Monday of which 300 tons came from Germany, 450 tons from London and 500 tons from Mexico.

St. Louis receipts last week were 38,330 pigs as against 60,140 pigs the week previous, while receipts since the first of January total 1,847,170 pigs as compared with 926,400 for the corresponding period last year.

Shipments from St. Louis last week were 48,900 pigs as against 36,330 for the week before, while the total shipments so far this year amounted to 1,373,555 pigs as compared with 1,355,260 for the corresponding period last year.

The scarcity of spot lead in London is reflected in the higher price as compared to futures.

The East St. Louis outside market is rather unsettled. The nominal differential makes the official price there 8.25 cents, but there seems to be no prompt East St. Louis lead available at that figure. The reduction of course was made altogether to meet the foreign situation at Atlantic seaboard, and probably 8.37½ cents to 8.50 cents East St. Louis can be obtained for prompt or September.

American pig lead and bar lead declined 50 cents per 100 pounds in the Chicago market, the quotations now being \$9.10 and \$9.60, respectively.

Solder.

The following prices rule in the Chicago market for solder: Warranted, 50-50, per 100 pounds, \$32.50; Commercial, 45-55, per 100 pounds, \$30.50; and Plumbers', per 100 pounds, \$28.50.

Zinc.

The domestic zinc market remains quiet with prices ranging from 8.10 to 8.20 New York and from 7.75 to 7.85 St. Louis.

The offers of zinc for shipment from the West are not large, and bids of 7.75 cents East St. Louis were declined, 7.80 cents asked, while the future East St. Louis position is difficult to quote at all, producers' costs naturally disinclining them to contracts at anything like the present basis, but buyers' views affected by the foreign situation and the price for prompt.

Demand, however, is very quiet, galvanizers being comfortably, though not heavily booked.

The reports as to labor with the producers show no change, but the market conditions offer so little argument for wage concessions that the companies are quite as indifferent to the situation as the men and perhaps more so.

Tin Plate.

The prospects are for an increased production of tin plates in the last quarter of this year.

The rail strikes that began April 1st almost stopped the tin plate mills and the recovery is not yet complete.

Preference has been given to the food crops in tin plate deliveries, with the result that other consumers have gotten very poor deliveries.

Indeed, they are said to be so much behind that they will absorb large quantities in the next few months if the tin plates are available.

Tin mill operations are further increased and now average between 80 and 85 per cent.

This is a fairly good average for this time of year, but is low in proportion to requirements, which have banked up on account of restricted operation of the mills all this year.

A decrease of prices has taken place in the Chicago market for all sizes of first quality bright tin plates, ranging from 30 cents per box for IC 14x20 to \$1.30 per box for IXXXX 20x28.

Sheets.

There is only a very slight declining tendency in the general average in the sheet market.

Such downward trend as can be observed is only in the outside prices.

The extreme prices of a week or two ago have disappeared while the mills that were obtaining less than the extreme prices are getting as high prices as formerly.

As a particularly pointed illustration, only a few weeks ago one of the more conservative of the independents advanced its prices half a cent a pound and of course it is adhering to its advanced prices, which are 7.50 cents on black and 8.50 cents on galvanized. Recently there were some sales of galvanized at 10 cents and 10.50 cents.

Old Metals.

Wholesale quotations in the Chicago district which may be considered nominal are as follows: Old steel axles, \$35.00 to \$36.00; old iron axles, \$41.00 to \$42.00; steel spring, \$27.00 to \$28.00; No. 1 wrought iron, \$24.00 to \$24.50; No. 1 cast, \$34.50 to \$35.00; all net tons. Prices for non-ferrous metals are as follows, per pound: Light copper, 12 cents; light brass, 7½ cents; lead, 6 cents; zinc, 4½ cents; cast aluminum, 20 cents.

Pig Iron.

Stagnation rules in the Pittsburgh and Chicago pig iron markets and most of the other districts are likewise affected.

Birmingham, Alabama, is the one exception as the iron makers in this region adhere firmly to the low base price of \$42 per ton.

This district, it can be safely said, is the most active pig iron market in the world today and orders are being booked from consumers in New England, Pittsburgh, Chicago, Cincinnati, Philadelphia and New York.

Current Hardware and Metal Prices.

AMERICAN ARTISAN AND HARDWARE RECORD is the only publication containing Western Hardware and Metal prices corrected weekly.

The prices and discounts quoted on this and the following pages, are, for the most part, subject to change without notice. Owing to the unsettled condition of the markets and the shortage of materials it is practically impossible for any manufacturer to guarantee his price for any given length of time.

METALS	TIN.	AUGERS.	BEATERS.
FIG IRON.	Pig tin 49 1/2	Boring Machine..... 40 @ 40 & 10 %	Carpent. Per doz.
Southern Fdy. No. 2 48 67	Bar tin 51 1/2	Irwin's 25 %	No. 7 Tinned Spring Wire... \$1 10
Lake Sup. Charcoal.. 58 50		Carpenter's Nut..... 50 %	No. 8 Spring Wire cop- pered 1 50
Malleable 46 70			No. 9 Preston 1 75
Foundry 46 70			
	HARDWARE	Hollow.	Egg. Per doz.
FIRST QUALITY BRIGHT TIN PLATES.		Bonney's..... per doz. 30 00	No. 50 Imp. Dover..... \$1 10
IC 14x20..... 112 sheets \$16 50	ADZES.	Post Hole.	No. 102 " " Tinned 1 25
IX 14x20..... 18 25	Carpenters'.	Iwan's Post Hole and Well... 30 %	No. 150 " " hotel.. 2 10
IXX 14x20..... 19 75	Plumbs Net	Vaughan's, 4 to 9 in. per doz. \$14 00	No. 10 Heavy hotel tinned 2 10
IXXX 14x20..... 21 15	Coopers'.		No. 13 " " " 3 30
IXXXX 14x20..... 22 50	Barton's Net		No. 15 " " " 3 40
IC 20x28..... 33 00	White's Net		No. 18 " " " 4 50
IX 20x28..... 36 50		Ship.	Hand 8 9 10 12
IXX 20x28..... 39 50	Railroad.	Ford's, with or without screw Net list	Per doz. \$11 50 13 00 14 75 15 00
IXXX 20x28..... 42 25	Plumbs Net		Moulders'.
IXXXX 20x28..... 45 00			12-inch Per doz. 20 00
COKE PLATES.	AMMUNITION.	AWLS.	BELLS.
Cokes, 180 lbs..... 20x28 \$22 35	Shells, Loaded, Peters.	Brad.	Call.
Cokes, 200 lbs..... 20x28 22 70	Loaded with Black Powder, Less 18 %	No. 3 Handled.... per doz. \$0 65	3-inch Nickeled Rotary Bell, Bronzed base... per doz. \$5 50
Cokes, 214 lbs..... IC 20x28 23 55	Loaded with Smokeless Powder, medium grades, Less 18 %	No. 1050 Handled " 1 40	Cow.
Cokes, 270 lbs..... IX 20x28 27 40	Loaded with Smokeless Powder, high grade, Less 18 %	Shouldered, assorted 1 to 4, per gro. 4 00	Kentucky 30 %
BLUE ANNEALED SHEETS.	Winchester.	Patent ass't'd, 1 to 4 " 85	Door. Per doz.
Base per 100 lbs. \$7 02	Smokeless Repeater Grade, Less 15 %	Harness.	New Departure Automatic \$7 50
ONE PASS COLD ROLLED BLACK.	Smokeless Leader Grade Less 15 %	Common " 1 05	Rotary.
No. 18-20..... per 100 lbs. \$7 80	Black Powder..... Less 15 %	Patent " 1 00	3 -in. Old Copper Bell... \$ 00
No. 22-24..... per 100 lbs. 7 85	U. M. C.	Peg.	3 -in. Old Copper Bell, fancy 8 00
No. 26..... per 100 lbs. 7 90	Nitro Club..... 18 %	Shouldered " 1 60	3 -in. Nickeled Steel Bell 6 00
No. 27..... per 100 lbs. 7 95	Arrow 18 %	Patented " 75	3 1/2-in. Nickeled Steel Bell 6 50
No. 28..... per 100 lbs. 8 00	New Club..... 18 %	Scratch.	Hand.
No. 29..... per 100 lbs. 8 10	Gun Wads—per 1000.	No. 18, socket handled per doz. 2 50	Hand Bell polished. List plus 15 %
GALVANIZED.	Winchester 7-8 gauge 10 & 7 1/2 %	No. 344 Goodell- Pratt, List, less..... 35-40 %	White Metal..... " 15 %
No. 16..... per 100 lbs. \$9 75	" 9-10 gauge 10 & 7 1/2 %	No. 7 Stanley..... " 2 25	Nickel Plated..... " 5 %
No. 18-20..... per 100 lbs. 9 90	" 11-28 gauge 10 & 7 1/2 %	AXES.	Swiss " 10 %
No. 22-24..... per 100 lbs. 10 05	Powder Each	First Quality, Single Bitted, 3 to 4 lb., per doz. 16 50	Miscellaneous.
No. 26..... per 100 lbs. 10 20	DuPont's Sporting, kegs... \$11 25	First Quality, Double Bitted per doz. 22 50	Church and School, steel alloys 30 %
No. 27..... per 100 lbs. 10 35	" " 1/4 kegs 3 10	Broad.	Farm, lbs... 40 50 75 100
No. 28..... per 100 lbs. 10 50	DuPont's Canisters, 1-lb... 56	Plumbs, West, Pat..... List	Each ... \$3 00 3 75 5 50 7 25
No. 30..... per 100 lbs. 11 00	" Smokeless, drums 43 50	" Can. Pat..... \$69 00	BEVELS, TEE.
KEYSTONE HAMMERED POLISHED STEEL.	" " kegs... 22 00	Firemen's (handled), per doz. 21 00	Stanley's rosewood handle, new list Nets
Discontinued. New product will be announced later.	" " 1/4 kegs... 5 75	Single Bitted (without handles).	Stanley iron handle..... Nets
BAR SOLDER.	" " canisters 1 00	Prices on Warren Silver Steel..... application	BINDING CLOTH.
Warranted,	Hercules "E.C." and "In- fallible", 50 can drums... 43 50	Warren Blue Finished " "	Zincd 55 %
50-50 per 100 lbs. \$32 50	Hercules "E.C.", kegs... 22 50	Double Bitted (without handles).	Brass 40 %
Commercial,	Hercules "E.C.", 1/2 kegs... 11 25	Warren's Natl. Blue, 3 1/2 to 4 1/2 lb. Prices on application	Brass, plated 60 %
45-55 per 100 lbs. 30 50	Hercules "Infallible", 25-can drums 22 00	The above prices on axes of 3 to 4 lbs. are the base prices.	BITS.
Plumbers' per 100 lbs. 28 50	Hercules "Infallible", 10 can drums 9 00	BAGS, PAPER NAIL.	Auger.
ZINC.	Hercules "E.C.", 1/4 kegs... 5 75	Pounds... 10 16 20 25	Jennings Pattern..... Net
In slabs \$ 8 60	Hercules "E.C." and "In- fallible", canisters 1 00	Per 1,000... \$5 00 6 50 7 50 9 00	Ford Car..... List plus 5 %
SHEET ZINC.	Hercules W. A. 30 Cal. Rifle, canisters 1 25	BALANCES, SPRING.	Ford's Ship..... " 5 %
Cask lots 15c	Hercules Lightning Rifle, canisters 1 25	Sight Spring..... Net	Irwin 35 %
Less than cask lots... 15 1/4-15 1/2 c	Hercules Sharpshooter Rifle, canisters 1 25	Straight Net	Russell Jennings..... plus 20 %
COPPER.	Hercules Unique Rifle, can- isters 1 50	BARS, CROW.	Clark's Expansive..... 33 1/4 %
Copper Sheet, mill base..... 29 1/2 c	Hercules Bullseye Revolver, canisters 1 00	Pinch or Wedge Point, per cwt..... \$8 00 to \$9 00	Steer's " Small list, \$22 00.. 5 %
LEAD.	ANVILS.	BASKETS.	" " Large " \$26 00.. 5 %
American Pig \$ 9 10	Solid Wrought..... 23 & 23 1/2 per lb.	Small Willow.... per doz. 15 00	Irwin Car 35 %
Bar 9 60	ASBESTOS.	Medium Willow... " 17 00	Ford's Ship Auger pattern Car..... List plus 5 %
Sheet.	Board and Paper, up to 1/16" 17c per lb	Large Willow.... " 20 00	Center 10 %
Full coils per 100 lbs. \$12 50	Thicker 18c per lb	Galvanized 1 bu. 1 1/2 bu. Per doz..... \$16 49 \$18 73	Countersink.
Cut coils per 100 lbs. 12 75			No. 18 Wheeler's .. per doz. \$2 25

BLACKING, STOVE, (See Polish)	Well. Oak, Wrought Iron Riveted Top Ears.....per doz. \$8 00	Picture Chains. Light Brass, 3 ft..per doz. \$1 25 Heavy Brass, 3 ft.. " 1 75	Saw Filers. Wentworth's, No. 1, \$12.50; No. 2, \$18.25; No. 3, \$16.25.
BLADES, SAW.	BURRS, RIVETING. Copper Burrs only..25% above list Tinners' Iron Burrs only.....30%	Sash Chain. (Morton's) Steel, per 100 ft. 0.....\$2 50 2....." 3 10 1....." 3 60	CLAWS, TACK. Wood hdl. No. 10....per doz. \$0 95 Forged steel, wood hdl. " 1 75 Solid steel....." 3 40 Giant " 50
Butchers'. Standard, 1/4 & 1 1/4-in....Nets Clock Spring..... " " Star " "	BUTTS. Cast Iron.....7 1/2% Wrought Brass (New List) Plus 5% Wrought Steel, Bright.....40% Wrought Steel, Japanned, ..... .....Net Prices	Champion Metal. 0R.....5 40 2R.....5 60 1R.....7 75	CLEANERS. Drain. Iwan's Adjustable.....25% Iwan's Stationary.....30%
Hack. Atkins .....5% Star .....Nets	CALIPERS. Double .....Nets Inside and Outside..... " " Wing " "	Champion Metal.—Extra Heavy. 1H.....9 50	Pot. Wire .....per doz. \$0 75
Wood. Disston Nos. 6 66 26 \$8 00 \$8 50 \$8 00 Atkins Nos. 2 14 18 \$3 85 \$6 50 \$4 75	CALKS Logger's Boot. (Lufkin R. Co.'s), per M..\$7 00 Toe. Blunt and medium, 1 prong. per 100 lbs.....\$6 20 Sharp, 1 prong, per 100 lbs \$ 70	Cable Sash Chains. Steel.....List Net Plus 15%	Side-Walk. Steel.....per doz., Net prices
BLOCKS. Wooden .....20% Patent .....20%	CANS. Milk. Elgin. Gals..... 5 8 10 Each .....\$4 00 \$5 15 \$5 15 Iowa Patterns. Gals..... 5 8 10 Each .....\$4 00 \$5 15 \$5 15	CHALK, CARPENTERS'. Blue .....per gro., \$1 40 Red " 1 40 White " 1 25 Common White School Crayon " 25c	CLEAVERS. Family. Beatty's, Inch.... 7 8 9 10 Per doz. \$27 00 29 00 33 00 36 00
BOARDS.	CAN OPENERS. See Openers.	CHIMNEY TOPS. In bags.....per bag \$1 70	CLEAVISES. Malleable .....10c lb.
Stove. Wabash Crystal.....Net Prices Wabash Art Inlay..... " " Wabash Embossed.... " "	CAPS, GUN. See Ammunition.	CHECKS, DOOR. Corbin.....Net List Russwin.....20%	CLIPPERS. Bolt .....\$2 25&6 00
Wash. No. 760, Banner Globe, (single) .....per doz. \$5 25 No. 652, Banner Globe, (single) .....per doz. 6 75 No. 801, Brass King per doz. 8 25 No. 860, Single—Plain Pump 6 25	CARPET STRETCHERS. See Stretchers.	CHECKS, DOOR. Iwan's Volcano.....35%	CLIPS. Axle .....65&5%
BOLTS.	CARRIERS. Hay. Diamond, Regular...each, Nets Diamond, Sling..... " "	CHISELS. Box. Inches..... 12 14 Round, per doz....\$5 25 5 75 Flat, per doz..... 7 25 8 25	Damper. Standard .....per doz. 70c Troy " 35c
Carriage, Machine, etc. Carriage, cut thread, 1/4x6 and sizes smaller and shorter .....30% Carriage, sizes larger and longer than 1/4x6 .....20% Machine, 1/4x4 and sizes smaller and shorter.....35% Machine, sizes larger and longer than 1/4x4.....25% Stove .....50-10% Tire .....40-5%	CARTRIDGES. See Ammunition.	Socket, Firmer. Ohio.....Price on Application	Hame " 50c
Mortise, Door. Gem, iron.....5% Gem, bronze plated..... 5%	CASTERS. Standard—Ball Bearing. .....50&10% Red .....40% Common Plate. Brass Wheel.....15% Iron and porcelain wheels, new list .....50% Philadelphia Plate, new list .....50% Martin's .....40%	Socket, Framing. Ohio.....Price on Application	CLOTH. Emery. Star .....New Prices B. & A. " "
Barrel. Cast .....Nets Wrought " " Wrought, bronzed " "	CATCHERS, GRASS. No. 160S, per doz.....\$12 25 No. 165S, " 14 01	Tanged, Firmer.—Barton's With handles.....Net list	Hardware Wire— Prices to application Full rolls (100 ft.) 12 Mesh, galvanized " " 14 " " " " 16 " " " " 18 " " " "
Flush. Wrought " "	CHAIN AND CHAINS. Brest Chains. With Slide..... 5 00 Without Slide..... 4 60 Doubleslack ....doz. pairs, \$3 50 With Covert Snaps 5 80	Choppers, See Cutters, Meat.	Screen Wire. Prices on application 12 mesh, painted, per 100 sq. ft..... " "
Spring. Wrought " " Wrought, heavy..... " "	CEMENT, FURNACE. American Seal, 5 lb. cans, net \$0 45 " " 10 lb. cans, " 90 " " 25 lb. cans, " 1 87 Pecora, 5 lb. cans..... 45 " 10 lb. cans..... 90 " 25 lb. cans..... 1 87	CHUCKS, DRILL. Goodell's, for Goodell's Screw Drivers .....List less 35-40% Yankee, for Yankee Screw Drivers \$6 00	Collared, Stove Pipe. Lacquered. Inches 5 6 7 Fancy pattern, per doz...., 80c 85c \$1 15
Square. Wrought " "	CEMENT, FURNACE.	CHURNS. Anti-Bent Wood, Gal..... 5 7 10 Each .....\$3 90 4 60 4 85 Belle, Barrel .....65&7 1/2% Common Dash, Gal..... 5 7 Per doz. 17 00 19 00	COMPASSES. Carpenters' .....15%
BORERS.	CEMENT, FURNACE.	CLAMPS. Adjustable. Martin's .....30% No. 63, Screw.....20% Cabinet. Screw .....20% Carpenters'. Steel Bar...List price plus 25% Carriage Makers'. 2 1/4" .....per doz. \$7 00 5" " 14 00 8" " 28 00 12" " 46 00	COPPER—See Metals. COPPERS—Soldering. Pointed Roofing. 3 lb. and heavier....per lb. 37c 2 lb. " 35c 1 1/2 lb. " 37c 1 lb. " 40c 1/2 lb. " 45c
Angular. Miller's Falls....per doz. \$23 00 Sill borers, No. 51 " 34 00 " 52 " 39 50	CATCHERS, GRASS.	Quilt Frame. No. 30 Ball and Socket. 2 1/4" head.....per gross \$13 00 No. 50, Ball and Socket, 3 1/2" head....per gross 14 50	CORD. Picture. White Wire.....60&5%
Bung. Doz. Enterprise Mfg. Co.'s No. 1..10% " " " No. 2..10%	CHAIN AND CHAINS.	Hose. Sherman's, brass, 1/2", per doz. 48c Double, brass, 1/2-in., per doz. 1 20	Sash. Sampson Spot, No. 7, per doz. ....\$24 50 Sampson Spot, No. 7, per doz. ....\$29 40
BOXES. Mail, No.... 2 4 10 Per doz....\$18 00 23 00 29 00	CHAINS.	COVERS, WAGON—See Tents.	CRADLES, GRAIN. Morgan's Grapevine per doz. \$45 00
Mitre. Stanley's.....Net Prices Stearns, No. 2...per doz. \$45 00	CHAINS.		
BRACES. Fray's Genuine Spofford's.....20&10% Fray's No. 08 .....\$7 50 " No. 610 8 00	CHAINS.		
BRACKETS.	CHAINS.		
Hay Rack. Wenzelmann's No. 1, per doz. sets.....\$18 00 Wenzelmann's No. 2, per doz. sets..... 19 20	CHAINS.		
Shelf. Wrought Steel.....40%	CHAINS.		

CRAYONS—See Chalk.	ELBOWS—Conductor Pipe.	Wood Pails.	HANGERS.
CUTTERS.	Galvanized Steel, Tin and Terne, Round Corrugated.	Frazer's, 15lb \$1.00; 25lb \$1.50 each.	Barn Door.
Glass.	Size. Doz.	Hub Lightning, 15lb 90c; 25lb \$1.21 each.	U. S. Roller Bearing.....12½%
Woodward .....40%	2-inch .....50%		Matchless .....12½%
Ment.	3-inch .....50%	Tin Cans.	Warehouse Tandem, No.
Enterprise—Nos. 5 10 12	4-inch .....50%	Frazer's	44 .....33¼%
Each.... \$2 50 \$4 25 \$3 75	5-inch .....50%	1½ lb. per doz.....\$1 75	Conductor P.
Nos. 22 32	6-inch .....50%	3 lb. per doz..... 3 25	Iwan's Perfection.....45%
" 6 50 8 50			Eave Trough.
Pipe.	EMERY, TURKISH.		All sizes, 5" or smaller,
Saunders', No. 1 2 3	Out of market at present time.	GRINDSTONES.	..... per gross \$3 80 Net
Each .....\$1 85 2 75 6 75	Domestic, lb. ....10c	Family.	All sizes, larger than
Slaw and Kraut. Per doz.	EYES.	Inches.. 7 8 10 12	5", per gross, 5 00 "
4-knife Kraut.....\$20 00-55 00	Bright Wire Screw—See Woods, B. W.	Per doz. 20 50 21 75 26 25 30 50	Garage Door.
3-knife Kraut,	Drifting Pick .....60, 10 & 5%	Loose.	Right Angle .....50&10%
8x27 in. ....13 00-18 00	Hooks and Eyes—	Per ton.....Price on application	Sliding Folding .....50%
1-knife Slaw 2 50	Brass, 1½" No. 60, per	Mounted.	Receding .....50%
2-knife Slaw 3 00	gross .....\$3 50	Ball Bearing.. 1 2 3	Parlor Door.
Washer 11 00	Iron, 1½" No. 50, per gross 1 60	Each .....\$4 75 5 00 5 25	Acme .....per set, \$3 75
DAMPERS, STOVE PIPE.	FASTENERS, STORM SASH.	GUN WADS.	Ives' Improved.... " 3 40
Diamond	Shroeder's.....per doz. \$1 50	(See Ammunition)	Lane's Standard... " 3 50
All sizes....40% from New List	Sensible..... " 3 00		Lane's New Model " 3 10
DIES AND STOCKS	FILES AND RASPS.	GUNS.	Le Roy Noiseless.....40&10%
Discount.....New List	Delta	Iver Johnson Champion Single	Richards .....25%
	Delta .....30%	Barrel Shot Guns....Net Prices	Advance .....40&10%
DIGGERS	Swiss.....List plus 25%	Double Barrel, Hammer-	HASPS.
Post Hole	Utility..... " net.	less "	Hinge, Wrought, ..Add 50% to list
Eureka.....per doz. \$14 50	Nicholson's—		With Staples—See Staples.
Iwan's Split Handle (Eu-	American .....5-10%	HAFTS, AWL.	HATCHETS.
reka) 4-ft. Handle..per doz. 15 00	Arcaide .....50-10-7½%	Brad.	Crescent .....50%
7-ft. " ..per doz. 20 00	Black Diamond.....40-10%	Common .....per doz. \$0 35	Cast Claw.....per doz. \$1 50@1 85
Iwan's Perfection (Atlas)	Eagle .....50-10-7½%	Peg.	Cast Shingling " 1 50@1 85
per doz 16 50	Great Western .....50-10-7½%	Patent, plain top.. " 80	Germantown .....7½%
Iwan's Hercules pattern	Kearney & Foot.....50-10-7½%	Patent, leather top " 90	HAY KNIVES.
per doz. ....18 00	McClellan .....50-10-7½%	Sewing.	See Knives.
See also Augers—Post Hole.	Nicholson brand.....40-10-5%	Common " 24	HAY RACK BRACKETS.
Dividers, Wing .....25%	J. Barton Smith.....50&2½%	Patent " 55	Wenzleman's No. 1
	X-F Swiss Pattern...Net List		..... per doz. sets, \$18 00
	Simonds' .....50%	HAMMERS, HANDLED.	Wenzleman's No. 2
	Disston's .....50%	each, net.	..... per doz. sets, 19 20
	Heller's .....60&10%	Blacksmiths, Hand, No. 0,	HINGES.
DOOR CHECKS—See Checks	FIRE POTS.	26 oz. ....\$1 35	Blind.
DOORS, SCREEN	Clayton & Lambert's—	Engineers', No. 1, 26 oz. 1 35	Clark's Gravity
¾-in. 4-panel, painted Net Prices	each .....\$4 00 @ 6 00	Farriers', No. 6, 7 oz. 1 41	No. 1.....per doz. sets, \$2 25
1½-in. 4-panel, painted "	Gate City.....each, 6 25	Machinists', No. 1, 7 oz. 1 06	No. 3..... " " 5 75
1½-in. 3-panel, natural	Gem .....each, \$5 75 @ 8 50	Nail.	Gate.
pine, fancy "	FORKS.	Vanadium, No. 41½, 16 oz.,	Clark's 1 2 3
DOOR HANGERS—See Hangers	Barley.	each .....\$2 00	Hgs & Lch, dz. \$5 50 7 00 9 75
DRILLS	Steel, new list.....New Prices	V. & B., No. 11½, 16 oz.,	Hinges only " 4 75 5 50 8 00
Blacksmiths' Twist. (New	Hay.	each 1 60	Latches only. 1 90 1 90
List) .....40%	2-time.....New prices	Garden City, No. 111½, 16	Screen Door.
Breast.	3- "New prices	oz., each 1 35	Cast Iron .....gross \$10 00
Millers Falls No. 12, each \$46 00	4- "New prices	Tinner's Riveting, No. 1, 8	Steel " 7 00
" " 112, " 26 00	Manure.	oz., each 1 10	Spring.
Hand.	4-time.....New prices	Shoe, Steel, No. 1, 13 oz.,	Chicago .....Add 12½% to list
Goodell's Automatic.	FREEZERS—ICE CREAM	each 1 60	Columbia Dbl. Acting,
Nos. 01 03	White Mountain 1-quart...@	Tack	..... 40&10&5@
Per doz. 12 00 14 40	" " 2 "@	Magnetic.	Gem .....25%
Goodell's Single Gear, per	" " 4 "@	No. 5, each.....\$1 00	Ideal Detachable, per gro. \$11 00
doz. ....15 75	" " 6 "@	HAMMERS, HEAVY.	Matchless .....40%
Goodell-Pratt No. 4½ per	Arctic.....1 "@	Heavy Hammers and Sledges.	New Idea .....per gro. \$7 20
doz. list, less.....30%	"2 "@	Under 5 lbs.....50%	Oxford .....20%
Goodell-Pratt No. 379 per	"4 "@	5 lbs. and over.....50&10%	Wrought Iron.
doz. list, less.....30%	"6 "@	Masons'.	New Lists Light Strap Hinges.....5&5%
Reciprocating.	"8 "@	Single and Double Face...50%	Heavy Strap Hinges...20&7½%
Goodell's.....per doz. 26 00	"10 "@	HANDLES.	Light T Hinges...List plus 45%
	"12 "@	Auger.	Heavy T Hinges...List plus 45%
DRIVERS, SCREW	"14 "@	Common Assorted per doz. \$0 75	Extra Heavy T Hinges. 15&5%
Standard .....Nets	GAUGES.	Pratt's Adjustable, Nos.	Screw Hook and Strap.
Lock Ferrule "	Cream Pail.	1 & 2, per doz..... 6 00	6 to 12 in....per 100 lbs. \$7 75
Champion "	Fairmount..... per doz. \$3.75	Ives' Adjustable...per set, 1 35	14 to 20 in.... " " 7 50
Champion Pattern "	Marking, Mortise, etc.	Axe .....30%	22 to 36 in.... " " 7 25
Clark's Interchangeable ..... "	.....Nets	Chisel.	Screw Hook and Eye.
Edison "	Wire.	Hickory, Tanged, Firmer, As-	¾ in.....per doz. pair \$2 60
Reed's Lightning "	Disston's .....25%	sorted, 55c; Large, 85c per	% in..... " " 3 50
Goodell's Spiral "	GIMLETS.	doz.	¾ in..... " " 5 00
Yankee Ratchet "	GLUE.	Hickory, Socket Firmer, As-	HOES.
" Spiral "	Bulk.	sorted, 70c; Large size, 80c	Garden .....Net
EAVES, TROUGH	B Amber.....per lb. 35c	per doz.	Grab.
50% off Standard List.	A White..... " 40c	Coal Pick .....40%	Extra .....New prices
ELBOWS—Stove Pipe	H. S. Amber..... " 32c	Drifting Pick .....40%	Hazel..... per doz. New prices
1-piece Corrugated, Uniform	Liquid.	File, assorted, 30c; Large, 35c per	Ladies' and Boys' ....New prices
Doz.	Army & Navy.....40%	doz.	Mortar .....New prices
6-inch .....\$2 25	Le Page's—	Hammer.	Planter's Eye.....New prices
8-inch 2 30	List "A".....37½%	Adze Eye...per doz. 40c to \$1 00	Weed .....New prices
7-inch 2 60	List "B".....33¾%	Blacksmiths' " 45c@1 00	BOOKS.
Uniform, Collar Adjustable	List "C".....25 %	Machinists' " 50c@1 00	Awning, No. 60.....per gro. 50%
Doz.	GREASE, AXLE.	Hay and Manure Fork.....25%	Belt.
6-inch .....\$2 65	Wood Boxes.	Screw Driver.	Brown's .....70&5%
8-inch 2 70	Frazer's.....per gro. \$13 00	Assorted 6	Jones' .....65&5%
7-inch 3 00	Hub Lightning 7 50	Large 9	Bench.
		Shovel and Spade.....25%	See Stops, Bench.

Box. Inch..... 5 7 10 12 Per doz. \$2 50 2 75 3 25 3 85		KETTLES. Brass .....15% Cauldron .....40&5% Copper .....per lb. 27 Maslin .....40&10% Sugar .....50%		Clothes. 50-ft. Jute.....per doz. \$0 95 50-ft. Sisal..... " 40 50-ft. Cotton..... " 15 50-ft. Braided Cotton..... " 25		NAIL PULLERS. See Pullers.	
Bush. Common Axe Handle, per doz. ....\$23 00		KNIVES. Beet Topping. Clyde, 9-in. Scimitar Blade, doz. ....\$3 85 California 3 40		LOCKING, STOVE. Bricks.....per crate 42c		NAIL SETS. See Sets.	
Chain. Inch. 1/4 & 5/16 3/8 7/16 1/2 Pr 100 \$7 60-8 10 9 75 11 50 12 60		Butcher. Per doz. Beechwood Handles, 6" blade .....\$4 00 Beechwood Handles, 7" blade 4 65 Beechwood Handles, 8" blade 5 65 Cooper's Hoop.....15%		LOCKS. Barn Door. No. 60 Stearns.....per doz. \$12 00 No. 80 " 24 00		NETTING, POULTRY. Galvanized before weaving...50% Galvanized after weaving...40%	
Clothes Line. Japanned .....per doz. 45c@1 40 Galvanized..... " 75c@2 50		Corn. Common, riveted, painted red .....per doz. Nets Little Giant..... " "		MACHINES. Riveting. Stearns No. 1....per doz. \$16 00		NIPPERS. End Cutting. Stubb's Pattern, Inches 5 6 Per dozen.....\$4 65 6 75	
Coat and Hat. Common Wire per gro. 1 25-1 65		Cooper's Hoop......15%		End and Diagonal Cutting. Swedish Side, Inches 5 6 Per dozen .....\$4 50 5 75		Hoof. Heller's .....40&10% V. & B., No. 52, each.....\$2 25	
Conductor. Iwan's Tinned Sickle.....List		Corn. Clipper .....per doz. \$1 75 Disston's 2 75 Earle's 3 00 Woodford 1 25		MAIL BOXES. See Boxes.		NOZZLES. Hose. Magic .....per doz. \$9 50 Diamond 5 75	
Gate. See Goods, Bright Wire.		Drawing. Standard .....List&5% Adjustable .....15% Barton's Carpenters'.....15%		MALLETS. Carpenters'. Fibre Head, No. 2 per doz. \$16 50 No. 3 " 19 50 No. 4 " 28 50		NUTS, HOT PRESSED. Square Tapped. \$1.85 off per 100 lbs.	
Grass. Common Nos. 1 3 5 7 Per Doz. \$4 50 3 50 3 75 3 25		Hay. Iwan's Solid Socket, doz. \$13 00 Heath's 13 00 Iwan's, Sickle Edge, " 13 00 Iwan's Imp'd Serrated " 13 00		Round Hickory.....per doz. \$2 00- 5 00		Hexagon Tapped. \$1.85 off per 100 lbs.	
Hammock. With plate.....per doz. 1 10 With screw..... " 1 00		Hedge. Challenge .....per doz. \$5 00 Disston's 3 75		Round Lig- numvitae.. " 6 25-10 50 Square Hickory " 3 50- 5 50 Square Lig- numvitae.. " 8 00-12 00		OILERS Chase Pattern. Brass and Copper.....10% Zinc .....43%	
Lambrequin, or Drapery, per gro.....30c		Mining. Common, Single .. " 60 Common, Double.. " 90 Streeter, 4-blade.. " 1 30 Streeter, 6-blade.. " 2 00		Tinner's. Hickory .....per doz. \$2 25		Engineers'. Tin .....per doz. \$7 00@ 9 00	
Picture .....50%&50&10%		Putty. Common ....per doz. \$0 75@1 50 Lander's ... " 1 75@2 50		DOOR. National Rigid.....50&10&5% Acme Steel Flexible.....50%		Machine. Common .....per doz. \$0 85	
Potato and Manure.....Nets		Scraping. Beech Handle..... 90@1 10 Lander's 5 50@6 50		Stove. No. 2.....per gro. Nets No. 1..... " " No. 1 Asbestos Toasters or wire-covered Stove Mats, with handle.....per doz. 1 10 No. 2 Asbestos Toasters, with ring.....per doz. 60		Box. See Box Chisels.	
Screw. Brass .....70% (See Goods, Bright Wire.)		Knobs. Mineral .....per doz. \$1 80 Porcelain 1 90 Jet 2 00		MATTS. Door. National Rigid.....50&10&5% Acme Steel Flexible.....50%		Can. Delmonico .....per doz. \$1 30 Never Slip..... " 65	
Seat Spring.....per lb. 5 1/2c		Ladders. Common Long. Per ft. ....17c@23c		MAULS. Iron, lbs.... 10 13 16 18 Per doz...Prices on Application Wood Face, lb... 10 12 14 Per doz...Prices on Application		Crate. V. & B.....per doz. \$7 25-11 00	
HOSE, GARDEN. Guaranteed 3 ply 1/2 inch.....16 c " 4 ply 1/2 inch.....18 1/2c " 5 ply 1/2 inch.....13 1/2c		Doors. Mineral .....per doz. \$1 80 Porcelain 1 90 Jet 2 00		MEASURES. Galvanized, doz.....Nets Japanned, doz.....Nets		OUTFITS, COMBLING. Combination& v doz. \$16 00 Economy " 8 50 Family " 14 50	
COTTON COV. RUBBER HOSE. High Grade Apache 1" guar. press. 400 lbs.....40c		Leaders, Cattle. Nos..... 51 52 Per doz.....\$1 35 1 45		MILLS, COFFEE. Enterprise .....16 2-3% Parker .....50&5% Arcade .....40-10%		Pails. Cream. 14-qt. without gauge, .....per doz. \$9 50 18-qt. without gauge, .....per doz. 11 00 20-qt. without gauge, .....per doz. 11 75	
HUSKERS. Nos..... B E Per doz.....New Nets No. 59.....per doz. New Nets		Leathers, Lace. Rawhide 1/2".....100 ft. \$2 60 1/4" 4 40		MITRE BOXES. See Boxes.		Sap. 10-qt., IC Tin.....per doz. \$4 00 12 " " 5 50	
IRON, FIG. See Metals.—First column.		Leathers, Pump. Valve and Plunger.....10%		Stock. Galv'd qts. 14 16 18 20 Per doz.....\$9 75 10 75 12 75 14 50		Water. Galvanized qts. 10 12 14 Per doz.....\$5 75 6 50 7 25	
IRONS. Curling. C.....per doz. \$4 40 B..... " 50 A..... " 58 Princessa 1 25 Thelma 1 25 Pinking 1 00		Lanterns. Bull's Eye Police. 3-in. Flash Light, per doz. \$13 00		Wood Choppers'. Lake Superior & Oregon pat. ....40&5%		Wood. Cable, 2-Hoop.....per doz. Nets Cable, 3-Hoop..... " Nets Cedar, 3-Hoop, brass " Nets	
Plane. Wood Bench...Add 10% to list		Leathers, Pump. Valve and Plunger.....10%		MEASURES. Galvanized, doz.....Nets Japanned, doz.....Nets		FANS. Dripping .....Net	
Sad. Charcoal .....per doz. \$11 00 Common, polished, per 100 lbs. 7 75 No. 70 Asbestos.....\$1 50 net No. 100 " 1 75 net Common, nickel plated... 8 25 Mrs. Pott's, No. 55 J, Enterprise, per set Nets No. 55 J, " " " " No. 55 T, " " " " No. 55 T, " " " " Tailors' Sad.....per lb. " Tailors' Goose.....per lb. "		Lifters. Stove Cover. Coppered ....per gro. \$3 25@5 50 Alaska 8 00 Alaska 10 00		NAILS. Cut Steel....Prices on Application Cut Iron.... " " "		Fry. Common .....Nets Acme "	
Ideal. 6 lb. Household .....\$3 50 9 lb. Dressmakers' 4 25 14 lb. Tailors' Goose..... 5 50		Lines. Chalk. Twisted in 20-ft. hanks. Nos. 4 6 7 8 9 Gro.....Prices on Application Twisted in 50-ft. balls. Nos. ....1 2 3 4 Per doz...Prices on Application Braided in 20-ft. hanks. Nos. ....0 1 2 3 Per doz...Prices on Application Mason's... " " "		WIRE. Small Lots, Prices on Application		Roasting. Paxton, Nos..... 1 2 3 4 Per doz.....Nets Neverburn Savory, No. 200...per doz. \$3 40	
Tuyere. Single Duck Nest, per doz. \$5 25 Double Duck Nest, " 6 25 Sutton .....each 2 60		Transom. Payson's .....55%		Cement Coated. Small Lots, Prices on Application		PAPER. Building. Plain .....per 100 lbs. Tarred " Prices on Application Tarred Felt, " " " Red Rosin, per ten.....\$5 00	
JACKS. Locomotive .....30%		Wagon. Richard's No. 1, per doz. \$15 50 Miller 20 00 Oliver, Nos 0 00 Each .....\$0 60 \$0 80 Standard, Nos 1 00 Each .....\$0 60 \$1 00 R-W Big Lift.....40% Tiger .....40%		Horshoe. Ausable .....55&5% Capewell .....15% Perfect .....55&5% Putnam .....20&5% Star .....30&5%		Sand and Emery. No. 1, per ream, best grade \$5 40 No. 1, per ream, cheaper grade 4 85	
				Picture. Brass Heads .....25%		Wrapping. Express .....100 lbs. Nets	
				Brads .....50&5%			
				Furniture.....List plus 15%			

PARERS.		Fencing.		PUNCHES.		SAWS.	
Apple.		Black Bull .....All Nets		Conductors.		S. C. Atkins & Co.	
Goodell's .....per doz. \$10 80		Farmers' Choice .....All Nets		No. 22 .....per doz. \$3 00		..... Prices on applic'n	
Turntable " 11 40		Russell's .....All Nets		Machine .....per lb. 25		Diaston's .....Prices on applic'n	
White Mountain... " 8 40		Flat and Round Nose.		Saddlers'.		Buck.	
Reading, No. 78... " 11 40		Bernard's .....New Prices		Common.....per doz. 1 50 to 5 00		Diaston's .....Prices on applic'n	
Potato.		Lodi .....New Prices		Revolving Spring.		Jackson's .....New nets	
Goodsell's Saratoga, 10 1/2		Paragon .....New Prices		Stearns, No. 10...per doz. \$8 00		Butchers'.	
In, doz..... 6 50		Tinners'.		" No. 40... " 16 00		E. C. Atkins & Co.	
Goodsell's Saratoga, 5 in.,		Hollow .....Net List		" No. 60... " 19 00		Diaston's .....Prices on applic'n	
doz. 5 50		Solid .....each, 10c		PUTTY.		Circular.	
PICKS.		PLUMBS AND LEVELS.		Strictly pure...per 100 lbs. \$4 25		E. C. Atkins & Co.	
Adze Eye Ore.....22 1/2%		Common .....Nets		Barn Door.		Diaston's .....Prices on applic'n	
Drifting and Poll Picks.....22 1/2%		Cook's .....40%		Matchless, 1-in.....5c		Hiles' .....New nets	
Plumbs, Railroad .....22 1/2%		Davis' Iron.....25%		Matchless, 1 1/4-in.....7c		Compass.	
Surface .....22 1/2%		Davis' Inclinator.....15%		Storm King .....5c		E. C. Atkins & Co.	
PINCERS.		POINTERS, SPOKE.		Sliding Door.		Diaston's .....Prices on applic'n	
Carpenters', cast steel.		Stearns' No. 1.....per doz. \$10 00		Sliding Door.		Coping.	
No. 6 8 10 12		" No. 2..... " 12 00		Bronzed wrought iron,		E. C. Atkins & Co.	
Each... \$0.63 .80 1.05 1.15		POKERS, STOVE.		..... per ft. 3 1/4c		Diaston's .....Prices on applic'n	
Blacksmiths' .....45%		Wrt Steel, str't or bent,		RAKES.		Cross-Cut.	
Heller's .....40%		Nickel Plated, coll han'l's " 1 10		Per doz.		E. C. Atkins & Co.	
PINS		POLISH.		Steel, Bow, 12-in. Teeth...\$8 50		Diaston's .....Prices on applic'n	
Common...per box of 5 gro. \$0 95		Metal.		Steel, Bow, 14-inch " 9 25		Dehorning.	
Picket.		Wizard, 6 -oz. per gross \$18 00		Malleable Iron, 12-in. " 4 75		Diaston's .....Prices on applic'n	
Flutter, 15-in.....per doz. \$1 10		" 1/2-pt. " " 20 40		Malleable Iron, 14-in. " 5 00		Flooring.	
Fluted, 21-in..... " 1 60		" 1-pt. " " 36 00		Hay.		E. C. Atkins & Co.	
Spiral " 1 90		" 1-qt. " doz. 6 00		Wood, 10 Teeth.....\$4 00		Diaston's .....Prices on applic'n	
PIPE.		" 1/2-gal. " " 10 80		Lawn.		Hack.	
Conductor.		" 1-gal. " " 18 60		20 Teeth .....per doz. \$5 50		Diaston's .....Prices on applic'n	
Plain Round and Round Corru-		Stove.		RASPS—See Files.		Hand and Rip.	
gated.		Black Eagle Paste 5 -oz. \$13 80		RAZORS—SAFETY.		E. C. Atkins & Co.	
29 Gauge .....50%		" " " 1/2-lb. 17 40		Gillette .....per doz. \$45 00		Diaston's No. 7 Prices on applic'n	
28 "40%		" " " 1-lb. 31 20		Auto Strop 45 00		Diaston's Nos. 8, D8, 12, 76,	
26 "30%		" " " 5-lbs. 5 25		Gem 8 40		112, D100, and 120,	
24 "List		Black Eagle Liquid, 6-oz.		Gem (3 doz. lots) 8 00		prices on applic'n	
Square Corrugated A and B and		per gross 15 60		Ever Ready 8 40		Keystone .....New nets	
Octagon.		Black Kid Paste, 5 lbs.		Ever Ready (3 doz. lots) " 8 00		Keyhole.	
29 Gauge .....40%		per case 6 00		RAZOR STROPS.		E. C. Atkins & Co.	
28 "35%		Black Jack Liquid, 1/2-pt.		Star (Honing) .....50%		Diaston's .....Prices on applic'n	
26 "25%		per gross 15 60		REGISTERS.		Miter Box.	
24 "List		Black Jack Paste, No. 10,		Cast Iron .....List		E. C. Atkins & Co.	
Galvanized Toncan Metal, Gen-		per gross 13 20		Steel and Semi-Steel.....10%		Diaston's .....Prices on applic'n	
uine O. H. Iron, Lyonore		POWDER.		Solid Brass or Bronze Metal		Diaston's .....Prices on applic'n	
Metal, Charcoal Iron and		See Ammunition.		Adjustable Ceiling Ventilators 10%		Panel.	
Keystone C. B.		PRESSES, FRUIT AND JELLY.		REGISTER FACES.		E. C. Atkins & Co.	
Plain Round and Round Corru-		Enterprise Manufacturing Co. 25%		Japanned, Bronzed and Plated,		Diaston's No. 7 Prices on applic'n	
gated.		PRIMERS.		4x6 to 14x14.....10%		Patternmakers'.	
28 Gauge.....40%		See Ammunition.		14x14 to 38x42.....25%		E. C. Atkins & Co.	
26 "30%		PRUNERS.		REVOLVERS.		Diaston's .....Prices on applic'n	
24 "List		Disston's Pole.....per doz. \$18 60		Iver Johnson Safety Automatic		Pruning.	
Square Corrugated A and B Poly-		Water's Improved.....per doz. 60%		Hammer .....New Nets		Diaston's .....Prices on applic'n	
ygon and Octagon.		PULLERS.		Hammerless "		Stairbuilders'.	
28 Gauge.....35%		Curk.		I. J. Model 1900..... "		E. C. Atkins & Co.	
26 "25%		Daisy .....each, \$3 10		RINGS AND RINGERS.		Diaston's .....Prices on applic'n	
24 "List		Phoenix " 1 40		Bull.		Wood.	
14 and 16-oz. Copper, all de-		Quick and Easy " 2 70		Copper .....2 1/2-in. 3-in.		E. C. Atkins & Co.	
signs .....List.		Nail.		Per doz. ....\$2 40 \$2 65		Diaston's .....Prices on applic'n	
Portico Elbows.		Glant .....per doz. \$14 50		Rea's Improved Self-		SAW BUCKS—See Bucks.	
Galvanized, and Terne Steel.		Never-Slip " 17 00		Piercing copper,		SAW SETS—See Sets.	
1 -inch .....35%		PULLEYS.		..... doz. 3 40		SAW TOOLS—See Tools.	
1 1/4 -inch .....35%		Awning—Jap'd .....10%		Steel, per doz. ....1 50 1 80		SAW FRAMES.	
1 1/2 -inch .....35%		Clothes Line .....10%		Hog.		Common, plain...per doz. \$1 50	
2 -inch .....35%		Hay Fork.		Blair's Rings .....per doz. \$ 75		Common painted.. " 2 10	
Tubing .....25%		Iron Wheel, 5-in..per doz. 2 50		Blair's Ringers... " 1 00		SCALES.	
Discounts on Round apply on		Wood Wheel, 6-in. " 2 65		Brown's Rings... " 72		Counter.	
sizes 2-inch to 6-inch inclusive.		Wood Wheel, 6-in.,		Brown's Ringers... " 1 00		Pelouze .....40&10%	
Freight allowed on 15 dozen or		pass knot..... " 3 00		Hill's Ringers... " 1 00		SCISSORS.	
more, to all points where		Sash.		Hill's Ring, boxes " 72		Star .....60%	
freight rate does not exceed		Common .....Net		Major Rings..... " 60		SCOOPS.	
\$1.00 per 100 lbs. Less than		Common-Sense, 2-in.....Net		Perfect Ringers... " 1 50		1/2 bu "Hercules"...per doz. 3 70	
15 dozen F. O. B. Factory.		Empire Pattern, 2-in.....Net		Wolverine Rings.. " 1 65		1-bu. "Hercules"... " 5 00	
Terms: 30 days net, 2% ten days.		Ideal .....Net		Wolverine Ringers " 1 10		SCRAPERS.	
Standard Gauge Conductor Pipe,		Steel .....Net		Scrapers.		Triangular, No. 6 per doz. \$6 25	
plain or corrugated.		PUMPS.		Copper Belt...Add 15% to list		Cubic ft. 7 5 3	
Not Nested .....35-5%		Pitcher Spout.		Coppered Iron .....30		With runners, ea. \$7 00 6 50 6 20	
Nested solid .....40%		Nos. 1 2 3 4		Tinners' .....30%		SCREEN DOOR HINGES.	
Stove.		Each .....Nets		Hamme .....per lb. \$0 17		Cast iron .....gross, \$13 00	
Per 100		Sash.		Slotted Clinch...per doz. 60@1 10		Steel 9 50	
Joints		Common .....Net		Tubular.		SCREWS.	
29 Gauge, 3-inch.....\$19 00		Common-Sense, 2-in.....Net		Nos. 1 and 2 assorted sizes,		Bench.	
" 4-inch..... 19 50		Empire Pattern, 2-in.....Net		Nos. 1 and 2 assorted sizes,		Iron, ins. 1 1 1/4 1 1/2	
" 5-inch..... 20 25		Steel .....Net		10 in box.....doz. 1 40		\$6 82 \$7 87 9 45 16 80	
" 6-inch..... 21 00		PUMP.		RIVET SETS.		Wood, white maple, per doz. 6 00	
" 7-inch..... 23 00		Pitcher Spout.		See Sets.		Hand—Wood .....50%	
T-Joint Made up.		Nos. 1 2 3 4		Cotton.		Hand Rail .....2	
6-inch .....per 100 \$60 00		Each .....Nets		1/4, 5-16 in. Com. on reels,		Jack .....20%	
Furnace Pipe.		Spray.		per lb. ....85c		Lag or Coach—all sizes, gimlet	
Double Wall Pipe and Fit-		Midget Junior.....per doz. 3 75		1/4, 5-16 in. Com. in colla,		pointed .....45-5%	
tings .....15%		New Misty " 6 00		per lb. ....85c		Saw—Centennial.	
Single Wall Pipe, Round		Crescent " 6 50		Sisal.		Nos. 1 2 3 4	
Pipe Fittings .....15%		Awning—Jap'd .....10%		1st Quality .....18 1/2c		Per doz. ....47c 65c 75c 90c	
Galvanized and Black Iron		Clothes Line .....10%		No. 2 .....17 1/2c		Wood.	
Pipe, Shoes, etc.....10%		Hay Fork.		Pure Manila.		F. H. Bright .....70-20%	
PLANES.		Iron Wheel, 5-in..per doz. 2 50		1st Quality, base...per lb. 28 1/2c		R. H. Blued .....67 1/2-20%	
Stanley Iron Bench.....net		Wood Wheel, 6-in. " 2 65		Hardware Grade...per lb. 27 1/2c		F. H. Jap'd .....62 1/2-20%	
PLATES, TIN.		Wood Wheel, 6-in.,		RULES.		R. H. Brass .....60-20%	
See Metals in Column 1.		pass knot..... " 3 00		Prices on application		R. H. Brass .....57 1/2-20%	
PLIERS.		Sash.		Lufkin's Hickory Board....		SCYTHES.	
Giant, Button's—Nets.		Common .....Net		Lufkin's Log		Clipper, Grass .....per doz. \$13 00	
Cutting.		Common-Sense, 2-in.....Net		Lufkin's Boxwood		Honest Dutchman.. " 12	
Bernard's .....New Prices		Empire Pattern, 2-in.....Net		Lufkin's Zigzag			
Lodi .....New Prices		Steel .....Net					
Paragon .....New Prices		PUMPS.					
		Pitcher Spout.					
		Nos. 1 2 3 4					
		Each .....Nets					
		Spray.					
		Midget Junior.....per doz. 3 75					
		New Misty " 6 00					
		Crescent " 6 50					

SETS.	SPRINKLERS, LAWN.	TAPES, MEASURING.	WARE.
Nail. Square head.....per doz. \$1 25 Cup point, knurled " 1 15	Stearns' No. 1.....per doz. \$11.50	Anson's Skin.....List&40% Lufkin's Steel ..Prices on applic'n Lufkin's Metallic Prices on applic'n Lufkin's Pocket ..Prices on applic'n	Glue Pots. TinnedAdd 15% to list Enameled30%
Rivet. Farmers'per doz. \$2 10 Tinners'25%	SQUARES. Steel and Iron.....Nets new list (Add. for bluing,\$3.00 per doz. net) Mitre..... Fry..... Fry and Bevel..... Fry and Miter..... Fox'sper doz. \$6.00 Winterbottom's10%	THERMOMETERS. Tin Case.....per doz. 30c@ \$1 25 Wood Back... " \$2 00@ 12 00 Glass " 12 00	WASH BOARDS—See Boards
Saw. Aiken's Pattern.....per doz. \$6 50 Disston's Monarch " 7 20 Disston's X-Cut... " 13 50 Leach's " 3 15 Nash's Hand..... " 4 20 Nash's X-Cut..... " 1 30 Stillman's Lever... " 2 50 Stillman's X-Cut... " 7 50 Whiting Pattern, No. 21..... Eccentric Anvil, Hand No. 395, N. P. Morrill Pattern..... 14 50	SQUEEZERS, LEMON. Common Woodper doz. \$0 70 Porcelain Lined Wood " 1 25 Boss, malleable iron " 1 20 Iron frame, porc'n bowl " 1 30 Iron frame, glass bowl " 2 35 Little Giant, tin'd iron " 4 00 Drum, japanned... " 3 60 Drum, nickel plated " 4 50	TIES. Bale. Single Loop, carload lots75&7% Single Loop, less than car lots.....70&15% Cow—See "Chains."	WASHERS. Standard O. G. cast iron, per lb.3% Wrought steel in 5-lb. boxes, per lb.: In 3/16 5/16 3/4 1/2 18c 16c 15c 13c 11 1/2c 11c 11c 11c
SHARPENERS, SKATE. Diamondper doz. \$1 60 Perfect1 20	STAPLES. Blind. Barbedper lb. 21@22c Butter, Tub..... " 16@19c Fence— Polishedper 100 lbs. \$5 45 Galvanized..... " 6 15 Netting. Galvanized.....per 100 lbs. 6 50 Wrought. Wrought Staples, Hasps and Staples, Hasps, Hooks and Staples, and Hooks and Staples50&10% Extra heavy35%	TOOLS, SAW. Disston's Universal.....40%	WEEDERS. Fuller's, per doz. \$2 60 to \$2 50 Tyler's Safety, per doz.....1 85 to 2 40 Carroll's, per doz. 3 00 to 3 75 Hosier, per doz. 3 50 to 4 60 Shaw Perfected... 3 00 to 3 75
SHEARS. Nickel Plated, Straight, 6".....\$12 90 " " " 7".....14 85 " " " 8".....16 30 Japanned, Straight 6".....11 00 " " " 7".....12 40 " " " 8".....13 80 Tinners'—See Snips.	STEEL YARD. Discount 25%.	TRAPS. Game with Chains. Per doz. Victor No. 1.....\$2 01 Onelda Jump No. 1.....2 75 Newhouse No. 1.....5 62 Mouse and Rat Net per gross Out O'Sight Mouse.....\$ 8 00 " " Rat15 00 " " Mole100 00 #44 Pocket Gopher.....20 00 Victor Mouse2 60 Hold Fast Mouse.....2 60 Victor Rat.....11 00 Hold Fast Rat.....11 00 Official Rat.....13 50 Wood Choker Mouse, 4 Holes11 00	WEIGHTS. Hitching.....per lb. Nets Sash—f.o.b. Chicago Ton lots, per ton.....\$73 00 Smaller lots, per ton.....75 00
SHEAVES, SLIDING DOOR. Common.....3 4 5 Inches.....\$1 40 1 75 2 40 Hatfield's. Per set.....\$1 30 2 10 2 75 25	STONES. Aze. Hindustanper lb. New Nets More Grit..... " " Washita " " Emery. No. 125.....per doz. New Nets Oil—Mounted. Arkansas Hard No. 7.....per doz. New Nets Arkansas Soft.. " " Washita No. 717 " " Oil—Unmounted. Arkansas Hard..per lb. New Nets Arkansas Soft.. " " Lilly White " " Queer Creek.... " " Washita " "	TROWELS. Brick. Clover Leaf30% Brade's15&5% Disston's30% Rose'sNet Plasterers'. Clover Leaf40% Disston's25% W. & McP.....Net	WHEEL BARROWS. No. 4 Tubular Steel....@ \$10 25 Common Tray or Stave Tray@ 5 00 Angle leg, garden.....@ 8 00
SHELLS—See Ammunition.	STONES.	TRUCKS. Bageach \$3 75 Warehouse or store. No. 1, each.....\$24 50 No. 2, "22 50	WHEELS. Carborundum50% Emery60% Well, Ins..... 8 10 12 Per doz.....\$5 50 7 25 8 50 12-in. heavy holisting, per doz.....\$25 00
SHELLERS, CORN. Unionper doz. \$6 75	SHIELDS pansion Bolt Shields.....60%	TUBS, WASH. Standard, Wood. Ex. Nos..... 3 2 1 large Per doz \$9 50 11 25 12 75 15 50 Galvanized. No..... 1 2 3 Per doz.....13 75 15 95 18 60	WIRE. Brass. In coilsNets In 1-lb. spools, new list.....Nets Broom—TinnedNets Cable—Same Price as Barbed Wire. Copper. In coilsNets 1-lb. spools, new list.....Nets Fence—Smooth. An'eal' Galv'd Nos. 6 to 9, less than car, per 100 lbs. \$4 25 \$4 95 Hair—New List.....40 & 10%
SHOES. Conductor60%	SHOVELS AND SPADES Coal. No. 2 Woodford...per doz. \$5 50 No. 152..... " 6 00 Ames', new list..Discount, 12 1/2% Neverbreak, hollow bck, blk, Nets National " " " Buckeye " " " Mohawk " " " Bar Drain & Ditching Iwan's Perfection.....\$30 00 Railroad, etc. Black Diamond...per doz. Net Crescent " " " Keystone " " " Star " " " Hollow Back..... " " Ames', new list, Discount 12 1/2%	TWINE. Market Quotation -ply Cotton Wrapping...\$.85 " " Extra Wrapping " " " " Hvy. Wrapping " " " " Wrapping on tubes " " " " cones... " " India Hemp, 1/4-lb. balls, No. 4 1/236c No. 635c No. 833c No. 18 2-ply Jute, 1 1/4-lb balls, lb.....49c	WRENCHES. Coes Steel Handle, 6-inch.. 30% " " " 8- " 30% " " " 10- " 30% " " " 12- " 30% Coes Knife-Handle, 6- " 30% " " " 8- " 30% " " " 10- " 30% " " " 12- " 30% Coes All Patterns.....30% Bemis & Call's: Adjustable 8, 10%; Adjustable 8 Pipe, 10%; Briggs' Pattern, Combination Bright.....25% Steel Handle Nut.....25% Combination Black25&5% Merrick Pattern25&5%
SHOT—See Ammunition.	SHOES.	VISES. No. 21, Hand.....\$5 00 Oval Slide, Inches 2 2 1/2 3 3 1/2 4 1/2 Each \$2 70 \$3 20 \$3 60 \$4 20 \$8 75 No. 1, Genuine Wentworth, Noiseless Sawper doz. 15 00 No. 2, Genuine Wentworth, Noiseless Sawper doz. 22 50 No. 3, Genuine Wentworth, Noiseless Sawper doz. 20 00 No. 500, All Steel Folding Sawper doz. 16 00	WRINGERS. No. 790, Guarantee, per doz. \$69 00 No. 770, Bicycle... " 66 00 No. 110, Domestic. " 59 00 No. 110, Brighton. " 56 00 No. 740, Bicycle... " 60 00 No. 22, Domestic. " 54 00 No. 22, Pioneer... " 61 00 No. 770B, Bicycle. " 108 00 No. 791B, Guarantee " 115 40
SHOVELS AND SPADES	SHOES.		
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 Niagara Machine & Tool Wks., Buffalo, N. Y.
 Ryerson & Son, Joseph T., Chicago, Ill.
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 Whitney Metal Tool Co., Rockford, Ill.

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 Howes Co., S. M., Boston, Mass.
 Knodler, Frederick J., Philadelphia, Pa.
 Marshalltown Mfg. Co., Marshalltown, Iowa
 Niagara Machine & Tool Wks., Buffalo, N. Y.
 Ryerson & Son, Joseph T., Chicago, Ill.
 Viking Shear Co., Erie, Pa.
 Whitney Mfg. Co., W. A., Rockford, Ill.
 Whitney Metal Tool Co., Rockford, Ill.

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 Bernz, Otto, Newark, N. J.
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 Tuttle & Bailey Mfg. Co., Chicago, Ill.

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Wrenches

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ADVERTISING
 is the power of an
 idea multiplied.

Other powers
 lose by expansion.
 Steam is power
 only when con-
 fined. Electricity
 radiated and dif-
 fused becomes
 nothing. Sound
 dies with distance.
 Great suns pale
 into invisible
 stars, and the
 power of light
 itself is lost in in-
 finite space. But
 the strange power
 of advertising in-
 creases by expan-
 sion. Diffusion is
 its life. It grows
 by what it im-
 parts.

The advertised
 idea, to become a
 power, must be genu-
 ine, vital, and related
 to the function of a
 meritorious business;
 and the means of its
 furtherance must be
 well chosen.

To choose well the
 means for the further-
 ance of your adver-
 tised idea, in order
 that it may become a
 power, in order that
 you may show its gen-
 uineness as a vital
 factor of your busi-
 ness, is not hard.

A close perusal from
 cover to cover of
 this week's issue of
AMERICAN ARTISAN
AND
HARDWARE RECORD
620 So. Michigan Ave.
Chicago, Illinois
 will disclose abundant
 evidence of this fact.

WANTS AND SALES

For paid yearly subscribers, **AMERICAN ARTISAN AND HARDWARE RECORD** will insert under this head advertisements of not more than fifty words **WITHOUT CHARGE**. Employers wishing to secure employees, parties desiring to purchase or sell business, secure partners, or to exchange, etc., will find that these pages offer excellent opportunities to satisfy their wants. Clerks and tinsmiths looking for situations will find it to their advantage to use these columns. Those who respond to these announcements please mention that they "READ THE ADVERTISEMENT IN AMERICAN ARTISAN AND HARDWARE RECORD."

BUSINESS CHANCES

For Sale—One No. 24 Giblin hot water boiler, 1,800 ft. capacity. Fine condition. A bargain. Write to J. Oscar Smith, Moberly, Missouri. 12-3t

For Sale—Over stock of furnaces. Will sell for less than factory price. For list and prices address Box 123, Clarion, Iowa. 11-3t

For Sale—1,000 Hot Air Pipe Dampers, in sizes 9, 10, 12 and 14 inch, with clips attached. Sanders Furnace Company, Fort Dodge, Iowa. 10-3t

Lightning Rods—Big profits and quick sales to live dealers selling "DIDDLE'S UNIVERSAL RODS." Our copper tests 99.96% pure. Prices are right—get our agency. L. K. Diddle Company, Marshfield, Wisconsin. V78-12-52t

For Sale—At a bargain, a No. 540 Myers Furnace. Wholesale price new \$400. Used one winter. Store building was burned down and never rebuilt. Furnace in good condition. Price \$125.00. A. E. Browder, Albion, Nebraska. 12-3t

For Sale—40 Round Oak, Favorite, Jewel, Garland and other self-feed hard coal base burners. Some used but one season. All taken in exchange for furnaces. Write for information. Manley Hardware Company, Harvard, Illinois. 10-3t

For Sale—Plumbing and heating shop in small town in southeastern Nebraska. Fine territory to draw from. Reason for selling, am going west. Well equipped and priced at \$550.00. Fine chance for combination tinner and plumber. No other shop. D. G. Hull, Verdon, Nebraska. 12-3t

Wanted—Two first-class sheet metal workers for furnace work, and auto radiator repairing and recoring. Prefer men 40 to 50 years of age who can do a good job. Will pay good wages and guarantee a home of your own as an inducement or bonus. Frank R. Jarrell, Hoopeston, Illinois. 10-3t

Business Chance—I must either sell my sheet metal and warm air furnace business or secure some one competent to take entire charge. Splendid opportunity for some one as I am doing the largest business of its kind in this section and a good future is assured. Full details will be given on request. Address B-29, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois.

For Sale—Hardware, furnace, sheet metal, auto radiator and welding business located in best town of its size (population 10,000) in northern Illinois. Invoice about \$10,000 to \$12,000. Sales this year will amount to from \$35,000 to \$40,000. Five men employed. Only fully equipped sheet metal, radiator and welding shop in city. More work than we can handle the year round. Good furnace business. Business is growing steadily. A rare chance for some one. Good reasons for selling. Address B-32, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 10-3t

HELP WANTED

Wanted—Plumber or steam fitter. Good wages. White Plumbing and Heating Company, Charlestown, Illinois. 10-3t

Wanted—A good all around man who can do tinning, plumbing, etc. Married man preferred. J. R. Jamison, Shell Rock, Iowa. 11-3t

Wanted—Combination tinner and plumber. Steady work. \$50.00 per week to the right man. E. M. True, Salem, S. Dak. 10-3t

Wanted—Tinner for factory work. State wages and experience. Messenger and Parks Manufacturing Company, Aurora, Illinois. 12-3t

Wanted—First-class sheet metal and furnace man. \$1.00 per hour and steady work. The Lindas Company, Kenosha, Wisconsin. 12-3t

Wanted—A good tinner. Steady work the year around. For particulars write to Geo. J. Schwickert, Mankato, Minnesota. 10-3t

Wanted—A first-class sheet metal worker for a general job shop. Steady work to right man. Geo. E. Roesch, Aurora, Illinois. 11-3t

Wanted—Sheet metal and furnace man. Plenty of work. No lost time. Wages \$1.00 per hour. H. N. Schwery, Highland Park, Illinois. Phone 555. 10-3t

Wanted—A good tinner and furnace man with some experience at plumbing. A steady job the year around to the right man. W. H. Baker, Sidell, Illinois. 11-3t

If you want sheet metal workers get in touch with us. No fee charged. Sheet Metal Workers Free Service Bureau, Room 424, Kasota Building, Minneapolis, Minnesota. 8-5t

Wanted—A-1 auto radiator repair man. Steady job if you are the right one. Married man and a Catholic preferred. James T. Weaver, 315 Center Street, Little Rock, Arkansas. 12-3t

Wanted—A good combination tinner and plumber. Good wages and steady job for right man. State experience and wages wanted. Frank L. Wilson, Mechanicsville, Iowa. 12-3t

Wanted at Once—One good combination tinner and plumber and one good tinner and sheet metal worker. We do not do pump or windmill work. Address N. T. Martin Hardware Company, Mineral Point, Wisconsin. 10-3t

Wanted—Good all around man for plumbing, heating, tin and sheet metal work, pumps, windmills, etc. Will pay \$50.00 per week to man who can deliver the goods. Address T. P. Johnson, Louisburg, Kansas. 11-3t

Wanted at Once—Two first-class sheet metal workers and furnace men. Must be good all around men. \$1.00 per hour and steady work. Union shop. Address Standard Sheet Metal Works, Corner Water and Genesee Street, Waukegan, Illinois. 9-3t

Wanted—Experienced plumber and furnace man. Must be of good clean habits and capable to take care of shop. Steady work the year around. Will be ready for work about October 15th. State wages, etc., in first letter. Ricklef's Hardware, Monticello, Iowa. 12-3t

Wanted—Licensed plumber; also one who has knowledge of tinning, to work in country town shop on his own time. Will furnish tools and shop free. Good opening for a hustler. Can get \$1.00 to \$1.25 per hour. Kindly address B-33, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 11-3t

SITUATION WANTED.

Situation Wanted—By first-class tinner and furnace man. Nothing less than \$35.00 per week. Wm. P. Ruh, 270 Lafond Street, St. Paul, Minnesota. 10-3t

Situation Wanted—By a first-class all around tinner and furnace man with some good reliable firm in town of from five to twenty thousand. Address 10 New Street, Mt. Clemens, Michigan. 11-3t

SITUATION WANTED

Situation Wanted—By first-class sheet metal worker and auto radiator expert. Steady job only. Ready for work about September 20th. Carry union card. Can give best of references. J. E. White, 336 Madison Avenue, Memphis, Tennessee. 10-3t

Situation Wanted—By tinner with knowledge of plumbing. Have had 16 years' experience. Can do estimating. Have taken care of my own shop for several years. I will sign a yearly contract with a good honest man. I prefer West. Write giving particulars as to wages, living conditions, etc. L. Phillips, Masonic Club, Akron, Ohio. 11-3t

Situation Wanted—By first-class sheet metal worker and pattern cutter with 14 years' experience. Am 32 years old. Have had experience in cornice skylight, furnace, mill elevator work and manufacturing. Can read blue prints and lay out work from same. Am strictly sober, reliable and a competent workman. Am a union man. Will consider nothing less than \$1.00 an hour and steady inside work. Would like to get a position with a large firm where there is a chance for advancement. Please address B-31, care of AMERICAN ARTISAN AND HARDWARE RECORD, 620 South Michigan Avenue, Chicago, Illinois. 10-3t

TINNERS' TOOLS

Wanted—A bench punch. Must be in first class condition. Geo. J. Schwickert, Mankato, Minnesota. 10-3t

Wanted—Men who know their trade from A to Z. That's the way the advertisements for Help Wanted start. You can learn more about your trade if you read good books on the subjects you are less familiar with. For a book covering the subject of Warm Air Heating thoroughly, you should read Snow's Furnace Heating, 284 pages. Price \$2.50. With AMERICAN ARTISAN one year (52 issues), \$3.85. Order your copy today from AMERICAN ARTISAN, 620 South Michigan Avenue, Chicago, Illinois.

BOOKS.

For Sale—To those who wish to save time and money, J. W. Conchar's PRICE MAKER AND PROFIT DETERMINER is just the thing you need. This handy volume will be of the greatest value to you in regulating the list and selling prices of any article. The tables in this book are arranged to show the sold cost and the net profit and the percentage that must be added to the actual warehouse or store cost to bring the result desired. 170 pages. Cloth \$2.00, postage prepaid. Address AMERICAN ARTISAN, 620 South Michigan Boulevard, Chicago, Illinois.

Wanted—Warm Air Heater Installers to read PROGRESSIVE FURNACE HEATING. A practical manual of designing, estimating and installing modern systems for heating and ventilating buildings with warm air. Profusely illustrated. The whole range of the subject is concisely and fully covered. There is nothing highly technical in this book, no methods not easily comprehended and applied. Size, 6x9 inches, 280 pages, 189 illustrations. By Alfred G. King. Price, \$3.00. With AMERICAN ARTISAN one year (52 issues), \$4.25. Get a copy of this book now. Read it in your spare time and learn more about your important business. All books sent prepaid. No books exchanged. AMERICAN ARTISAN, 620 South Michigan Boulevard, Chicago, Illinois.

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